Reproductive Tract Infections and Women's Reproductive Health in Ado-Ekiti, Southwest Nigeria

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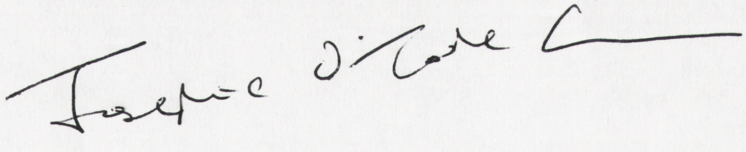

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Abstract

Reproductive tract infections (RTIs) are a common reproductive health problem with potentially severe health and social consequences which have received scant attention, particularly in developing countries. These infections are preventable and many can be resolved with relatively low-cost treatments which are easy to deliver. Appropriate reproductive health care services which meet the varied needs of women through the different stages of their lives could greatly reduce the toll of these infections on women's health and quality of life. The successful development of such services is dependent on an understanding of the social, cultural and epidemiological context within which they are to be introduced and of the complexities underlying the current practises of both health seekers and health providers.

A case study in Ado-Ekiti, Ondo State, Nigeria shows that women recognise symptoms associated with RTIs as being related to conditions which have serious detrimental effects on their health and on their ability to conceive and bear children. However, their reaction to these symptoms vary considerably and are dependent upon what is believed to be causing them. Health beliefs, symptoms recognition and aetiological concepts determine not only the seeking of timely and effective treatment but also the sexual activity of symptomatic women.

Reproductive health services in Southwest Nigeria fail to meet women's basic needs for the prevention, diagnosis and treatment of RTIs. Levels of contraceptive use are low and few women use methods that offer protection against sexually transmitted RTIs. Although illegal in Nigeria, induced abortions are widely used, frequently poorly performed they pose a serious potential health risk. Maternity services are widely used in Ado-Ekiti and elsewhere in Southwest Nigeria and constitute a possible route through which to provide for the prevention, diagnosis and treatment of RTIs to a large number of sexually active women. The need for such measures is indicated by the high level of RTI among women attending antenatal clinic services. Cost, infrastructural deficiencies, personnel and attitudinal problems are among the obstacles which would need to be overcome in order to provide these services.

Formal and informal health providers, government and private services have important roles to play in providing a more comprehensive and appropriate system of reproductive health care to women in developing countries. Central to providing appropriate women's reproductive health services is the involvement of women as active agents whose needs are voiced, recognised and responded to.

TABLE OF CONTENTS

List of tables

List of figures

List of appendices

CHAPTER ONE

INTRODUCTION

Reproductive tract infections

Reproductive tract infections (RTIs), their complications and sequelae are a significant public health problem worldwide. The term RTI refers to a variety of infections of the lower and upper reproductive tracts of both men and women and is not simply a euphemism for sexually transmitted disease (STD). RTIs encompass both sexually transmitted diseases, such as gonorrhoea and syphilis, and non-sexually acquired infections. In women, the latter include infections which arise from overgrowth of organisms which occur naturally in the lower reproductive tract and those that arise through poor obstetric care, induced abortion and other potentially unhygienic transcervical procedures such as IUD insertion. Non-sexually transmitted RTIs can also arise from the use of unclean menstrual cloths or practises such as the insertion of materials in the vagina to increase a male partner's pleasure, to prevent pregnancy or to induce abortion.

Reproductive tract infections are a health concern in both developed and less developed countries. In the US, there has been a gradual decrease in the incidence of STDs in the white middle class population. However, rates of infection vary markedly by age, sex and race. Among minority groups and those population groups with lower socio-economic status, especially those living in inner city areas, incidence rates of chlamydia and gonorrhoea show little change, and rates of syphilis and chancroid have actually been increasing (Aral and Holmes, 1990).[1] In a recent review of health priorities in the developing world by Over and Piot (1992), STDs, excluding HIV infection, were ranked among the top ten most important health problems. The model used in the study suggested that in high prevalence communities, STDs rank third after measles and malaria in terms of age-adjusted 'healthy life years lost per capita per year' (HLYL).[2] When productive HLYL were calculated, STDs were second only to measles as a health burden. Most studies in developing countries are hospital or clinic-based. These study populations often do not reflect the general population and suffer from serious selection biases making international comparisons between studies problematic. However, it would appear that globally the problem of RTIs is particularly acute in sub-Saharan Africa. Wasserheit (1989) presents a review of studies of RTI prevalence among women

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[1] An example of the racial differences in the incidence rate of gonorrhoea is shown in figures from King County, Washington. During 1986 and 1987 the overall incidence of gonorrhoea per 100,000 population was 3033 for blacks, 843 for Native Americans, 617 for Hispanics, 190 for Asians and 121 for Caucasians (Aral and Holmes, 1990).

[2] HLYL is a product of 'healthy life years lost per case' and 'cases per capita per year' (Over and Piot, 1992).

who are not acknowledged prostitutes (women included in these studies were those presenting to family planning, antenatal, perinatal or gynaecological services and respondents in population-based surveys). Whilst limitations of the various studies make comparisons problematic, the studies show the prevalence of RTIs to be greater in African populations than in those of Asia or Latin America. For example, in African studies the median prevalence of gonococcal cervicitis was ten per cent (range 0-40%), in Asia it was one per cent (range 0.3-12%) and in Latin America it was six per cent (range 3-24%).

In both developed and developing countries RTIs are the most significant cause of disease-related subfecundity and infertility (McFalls and McFalls, 1984). Although there are few reliable data to indicate the proportion of infertility attributable to RTIs in the developing world, studies suggest that the proportion may be appreciable. Based on a variety of sources, Wasserheit *et al.* (1992) estimate that the proportion of infertility due to RTIs varies by region from 50-80 per cent in Africa, 15-40 per cent in Asia, 35 per cent in Latin America and 10-35 per cent in industrialised countries. Sub-Saharan Africa has long been recognised by demographers as a region where extraordinarily high levels of infertility can be found, and in most studies these are attributed to high levels of infection by sexually transmitted diseases (Romaniuk, 1968a; Retel-Laurentin, 1974b; Caldwell and Caldwell, 1983; Frank, 1983b).[3] Based on data from 21 African countries Bongaarts *et al.* (1984) calculated an average level of primary infertility or childlessness among women of 12 per cent . If fertility decreases by one birth for each increase of nine percentage points in the proportion of women aged 45-49 who have no children, this indicates that after discounting natural infertility of 3 per cent, women in these countries had on average a shortfall of one live birth due to pathological infertility (Frank, 1983a). Frank (1983a) has estimated that for the sub-Saharan region as a whole, a reduction to normal levels of infertility, assumed to be 3 per cent for developing countries, would result in a 15 per cent increase in total fertility. This would suggest that RTIs may have a notable demographic effect in this region.

It has now been established that some sexually transmitted diseases can act as co-factors for the transmission of HIV, increasing the risk of infection (Stein, 1993). STDs which cause genital ulcers, such as syphilis or chancroid, may enhance sexual transmission of HIV by disrupting the genital mucosa. Non-ulcerative bacterial STDs may also increase the risk of HIV infection by increasing in the semen and in vaginal secretions[4] the number of immune cells (lymphocytes and macrophages) which act as host cells to the virus. It has been postulated that disturbance of vaginal pH may partially explain why non-ulcerative RTIs have been shown to increase the transmission

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[3] There is no doubt about the existence of a belt of high infertility which includes Gabon, Cameroon, Zaire, the Central African Republic and the Sudan. However, levels of infertility in sub-Saharan Africa vary markedly and there is a wide range by region in the prevalence of childlessness (see Chapter Four).

[4] Except during menstruation healthy vaginal secretions contain relatively few CD4 lymphocytes and macrophages (Anderson and Hill, 1991).

of HIV in women (Wasserheit, 1991). This has important implications, for two of the most commonly occurring RTIs (trichomoniasis and bacterial vaginosis) are associated with an alkaline change in pH. The greater prevalence of these infections and non-ulcerative STDs such as gonorrhoea and chlamydia means that these infections carry a potentially higher population risk than ulcerative genital diseases. The increased risk of HIV transmission associated with an existing STD may partly explain the differing rates of spread of HIV around the world. This may be a factor in Africa which, with less than 10 per cent of the world's population, has more than 60 per cent of the world's HIV-infected adults and 90 per cent of the world's HIV-infected children (De Cock *et al.*, 1993).[5]

Despite having important health, social and economic implications, compared to other major causes of infectious morbidity and mortality such as malaria, respiratory infection and diarrhoea, RTIs have until recently received little attention. Partly as a product of an increased interest in STDs associated with the AIDS epidemic, this is beginning to change. In developing countries RTIs have been considered a low priority by both public health administrators and international donor agencies. Few resources have been committed to their prevention, diagnosis and treatment despite the fact that in many countries they are a major public health problem. This situation may have arisen from the misconception that RTIs affect only small segments of the sexually active population, such as prostitutes, and that they are expensive and complicated to treat (Dixon-Mueller and Wasserheit, 1991). In fact most RTIs can, with timely diagnosis, be easily and effectively treated using simple antibiotic regimes at a much lower cost than that needed to treat the consequences of infection such as pelvic inflammatory disease and ectopic pregnancy.

A review of RTIs

In women most RTIs originate in the lower reproductive tract,[6] causing genital ulcers (syphilis and herpes), vaginitis (bacterial vaginosis, trichomoniasis, candidiasis) or cervicitis (chlamydia, gonorrhoea, human papilloma virus). If untreated some types of vaginitis and cervicitis may subsequently ascend into the upper reproductive tract causing pelvic inflammatory disease (PID). Genital ulcer diseases such as syphilis and herpes can spread to the blood stream to cause a systemic infection, with consequences that are particularly serious for pregnant women and their offspring.

RTIs can result in such potentially life-threatening conditions as peritonitis (inflammation of the lining of the abdominal cavity) and ectopic pregnancy (gestation in

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[5] There is considerable geographic variation in the spread of HIV in Africa. Factors which may contribute to this variation include: sexual behaviour; the prevalence of infectious agents such hepatitis which may lead to chronic activation of the immune system (Quinn *et al.*, 1986); and male circumcision (Bongaarts and Way, 1989).

[6] The lower reproductive tract refers to the external genitalia, vagina and cervix; the upper reproductive tract refers to the uterus, fallopian tubes and ovaries.

the fallopian tube). They may cause infertility, act as a causal factor for cervical cancer[7] or increase the risk of HIV transmission. RTIs can also cause pregnancy loss, premature birth, low birthweight or congenital infection. Presented in Table 1.1 are the causative agents, modes of transmission, and clinical manifestations of common RTIs. The possible outcomes of these infections in non-pregnant women and pregnant women and their offspring are also indicated.

Table 1.1
RTIs suffered by women, their characteristics and outcomes.

Infection	Infective agent	Principal mode of transmission	Clinical manifestation in women	Possible outcome
Gonorrhoea	Bacteria	Sexual intercourse	Often asymptomatic, vaginal discharge, vaginal/vulval irritation, cervicitis.	Endometritis, salpiingitis, PID, infertility, neonatal conjunctivitis, spontaneous abortion.
Chlamydia	Bacteria	Sexual intercourse	Often asymptomatic, vaginal discharge, lower abdominal pain, cervicitis.	Endometritis, salpiingitis, PID, infertility, neonatal conjunctivitis, spontaneous abortion.
Syphilis	Bacteria	Sexual intercourse, blood contamination.	Depending on stage of infection - chancres, vulvovaginal ulcers, dementia.	Intrauterine growth retardation, prematurity, stillbirth, congenital infection of infant.
Donovanosis	Bacteria	Sexual intercourse	Granulomatous lesions	Genital erosion, urethral occlusion.
Chancroid	Bacteria	Sexual intercourse	May be asymptomatic, genital ulcers, inguinal buboes.	Genital ulcers, inguinal abscesses.
Genital herpes	Virus	Sexual intercourse	Genital ulcers/lesions, may include cervix	Recurrent infection, congenital/perinatal infection.
Hepatitis B	Virus	Sexual intercourse, contact with blood or body fluids.	Asymptomatic or acute illness.	Carrier state, chronic hepatitis or cirrhosis, primary hepatic carcinoma.
Genital warts	Virus	Sexual intercourse	Genital/cervical warts.	Close association between genital watrs and cervical cancer
Trichomoniasis	Protozoa	Sexual intercourse	Vaginal itching, offensive vaginal discharge.	No late complications of trichomoniasis known.
Candidiasis	Fungus	Balance between host and yeast disturbed e.g. by: o.c.s, antibiotics, pregnancy.	Vulval itching, vaginal discharge	Chronic painful sexual intercourse.
Bacterial vaginosis	Bacteria	Overgrowth of endogenous bacteria.	Vaginal discharge	Upper RTI, prematurity, infectious obstetric complications.

Source: Holmes et al., (1990).

[7] Cervical cancer seems to be causally related to lower reproductive tract infections with some subtypes of the human papilloma virus which also cause genital warts (Richart, 1987).

Pelvic inflammatory disease: the path from RTI to impaired fertility

Pelvic inflammatory disease, which can lead to ectopic pregnancy and infertility, is commonly associated with upper reproductive tract infections such as those arising from gonorrhoea, chlamydia and bacterial vaginosis.[8] PID is a term which refers to a clinical syndrome attributed to the ascending spread of micro-organisms from the lower genital tract to the fallopian tubes and contiguous structures. Salpingitis, which refers to infection of the fallopian tubes, is often used interchangeably with PID. Pelvic infections are caused by a wide variety of viral, bacterial, parasitic and fungal agents. The infectious agent may reach the pelvis secondary to an infection elsewhere (e.g. appendicitis), but usually it ascends from the lower genital tract. For example, the causative organism of gonorrhoea may move from the cervix to the upper genital tract aided by reflux of menstrual blood. Organisms may also ascend when the cervix is breached as in childbirth, spontaneous abortion, induced abortion and insertion of an IUD. These procedures also present an opportunity for the introduction of exogenous organisms through unwashed hands and the use of dirty instruments. Up to one-third of gynaecological admissions to African hospitals are caused by pelvic infection, about half of which are puerperal (Cates, 1985).

PID can have a serious effect on fertility. In general, a woman with PID is more likely to become permanently infertile if the disease is severe, if treatment is delayed, or if she has suffered multiple episodes of PID. Westrom (1975) estimated that one episode of PID results in tubal occlusion in 12.8 per cent of cases, 2 episodes will lead to occlusion in 35.5 per cent of cases and 3 or more episodes of PID results in tubal occlusion in 75 per cent of cases. In developed countries an estimated 15-20 per cent of women who develop PID become infertile (Sherris and Fox, 1983). In developing countries where women are less likely to be treated the proportion is probably considerably higher. The reproductive outlook varies according to the aetiology of the PID; ranked by severity, postabortal infections[9] are a greater threat followed by non gonococcal infections and gonococcal PID.

The biological and social gender bias of reproductive tract infections

Although RTIs affect both men and women, their impact in terms of their physiological effects and social consequences is particularly severe for women, especially those living in the Third World. The World Health Organisation (WHO) estimates that over 200 million sexually transmitted reproductive tract infections occur each year among women in developing countries (Ronald and Aral, 1992). RTIs exhibit

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[8] It is estimated that 10-20 per cent of women with untreated cervical gonorrhoea and 8-10 per cent of women with untreated chlamydial cervicitis develop PID (Wasserheit, 1990). It is not known what percentage of women with bacterial vaginosis go on to develop PID.

[9] 15-20 per cent of women having an abortion with untreated cervicitis develop PID (Wasserheit, 1990).

a biological "sexism" which means that women are both more likely to contract an infection[10] and have a greater likelihood of suffering severe long-term complications from the infection than men. Such complications may include pelvic inflammatory disease, ectopic pregnancy, cervical cancer and infertility. RTIs may also have an adverse effect on pregnancies and can result in spontaneous abortion, stillbirth or low birthweight. They can be transmitted vertically to the foetus or during childbirth to the new-born and can cause severe conditions in infants such as blindness or even death. Thus, RTIs compromise women's ability to achieve and sustain pregnancies as well as to produce healthy children. In societies where a woman's worth is measured by her role as mother and producer of offspring, complications of RTIs which compromise her fertility can have a profound effect on her social standing, both within her family and within her community. The social costs of these infections and their sequelae may include family disruption, abandonment, divorce and social ostracism. It is also important to emphasise that many women, whilst not experiencing severe or life-threatening complications of infection, suffer day to day the pain, discomfort and inconvenience of chronic RTIs. The detrimental effect of these infections on the quality of women's lives should not be underestimated.

The degree to which women are put at risk of RTIs and their complications is closely tied to the social and cultural characteristics of the society in which they live. Norms for sexual and marital behaviour may dictate activities, such as early coital debut, polygyny or socially condoned male promiscuity, which increase the risk of infection. Traditional gender roles may mean that women lack control in sexual decision-making and are unable to avoid potential exposure to infection through the risk-taking behaviours of their partners. In societies where women lack economic opportunities, sex may constitute an important commodity which women use to fulfil their economic needs, often exposing themselves to the risk of infection as a consequence. Culturally prescribed behaviours, for example those relating to menstrual hygiene and circumcision, may also contribute to the risk of contracting RTIs.

In relation to the prevention, diagnosis and treatment of RTIs, the biological and social gender bias is particularly apparent in less developed countries. Women are put at risk of RTIs not only through their own or their partner's sexual behaviour but also through poor obstetric care, induced abortion and procedures such as unhygienic IUD insertion. RTIs are often asymptomatic in women and therefore may go undiagnosed and untreated. This is particularly true of resource-poor countries where diagnosis is more dependent on clinical or syndromic methods. Moreover, it may be more difficult for a woman to seek treatment than her male counterpart, as in many societies the stigma attached to sexually transmitted diseases is much greater for women than for men. In some societies having a bout of sexually transmitted disease is, for men, an

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[10] For example, the risk of acquiring gonorrhoea from a single act of sexual intercourse in which one partner is infectious is approximately 25 per cent for men and 50 per cent for women (Hatcher et al., 1990).

accepted or even expected part of growing up, or an admirable indicator of their number of sexual conquests, whereas for women it is considered to be totally reprehensible and shameful. Such attitudes can act as a barrier to women seeking health care and may contribute to delayed treatment, increased complications and further spread of infection.

In the past two decades women's health advocates from all parts of the world have taken up issues of reproductive health. The goals of these advocacy efforts have been to empower women to control their own fertility and sexuality, to maximise choice and to minimise health problems. These objectives are sought not only through the development of appropriate methods of fertility regulation, disease prevention and health delivery but, more fundamentally, through an improvement in women's social, political and economic well-being. The women's health advocacy movement has in recent years been making strong efforts to bring to the attention of medical scientists, social scientists, public health administrators and policy makers the importance of RTIs, not only in relation to the effects these infections may have on individual women but also in relation to wider public health considerations.

Reproductive tract infections: implications for the fulfilment of Nigeria's health and population policy goals

Nigeria, the focus of the present study, is one of the largest countries in Africa and its most populous nation. Nigeria is environmentally, ethnically and culturally varied. The land ranges from savanna in the north to tropical rain forest in the south, is home to 380 ethnic groups and has large Muslim and Christian populations. In the 1970s Nigeria enjoyed a booming economy based on revenue from its large oil resources. However, in the 1980s the country suffered a series of oil price shocks which catalysed a severe economic decline. This decline and the measures taken by the Federal Government to redress the crisis have had far-reaching effects on all aspects of Nigerian life. High inflation, a lowering of real incomes and a general fall in the standard of living have brought disruption and hardship to large sections of the population (Dennis, 1992). These economic challenges have been accompanied by political uncertainties and upheaval as Nigeria moves from military to democratic rule.

In both the developed and developing world it has been shown that rapid demographic, economic and political change are often associated with a high incidence of STDs (Larson, 1989; Aral and Holmes, 1990). Although data sources are limited it would appear that RTIs constitute an important public health problem in Nigeria which may be aggravated by Nigeria's continuing socio-economic change (Adekunle and Ladipo, 1992). The weakening of traditional social norms, and an increased basic economic need associated with this change, may contribute to the escalation of the problem of RTIs as traditional restraints on sexual behaviour weaken and the use of sex as an economic commodity becomes more widespread.

RTIs may be argued to be an important public health problem in Nigeria purely on the basis of the morbidity and mortality directly arising from these infections and their complications (Adekunle and Ladipo, 1992). However, the significance of RTIs is greatly increased by the relationship they have to two important policy goals of the Federal Nigerian Government - limiting the AIDS epidemic and reducing population growth.

Nigeria lies to the west of those areas of sub-Saharan Africa most severely affected by the AIDS epidemic, and currently is classified as a low-middle risk country for HIV. Nigeria started major medical and poster campaigns to combat AIDS in 1990 and has recently committed 3 million Naira to spreading the message of safer sex (Owen-Davies, 1992). As already noted, STDs can act as co-factors for the transmission of HIV. Moreover, populations with a high risk of acquiring STDs are often also the populations at high risk of HIV infection. A WHO (1990) consensus statement confirms that programs for STD and AIDS control should be combined to increase their cost-effectiveness, impact and sustainability, and recommends that, to maximise effectiveness, STD programs should be introduced at an early stage of the AIDS epidemic. If Nigeria is to achieve its aim of capping the AIDS epidemic at an early stage and of limiting its spread it must also work to reduce the incidence of sexually transmitted reproductive tract infections.

In 1986 Nigeria announced a population policy which called for a target of four births per woman by the year 2000. Given that Nigeria's current total fertility rate (TFR) is 6.5, this target is an ambitious one. Success in attaining it will require a considerable increase in the use of modern contraceptives, which is presently extremely low.[11] A high prevalence of RTIs among the female population may affect the acceptance and continued use of contraceptive methods both directly and indirectly. It is common for health problems, particularly reproductive tract symptoms, to be ascribed to the method by contraceptive users (Hopcraft *et al.*, 1973). Studies of use-effectiveness have repeatedly shown that the most common reason for discontinuing contraceptive use is side-effects perceived as being method-associated (Bhatia *et al.*, 1980; Rob *et al.*, 1987). Symptoms arising from a reproductive tract infection may be wrongly attributed to the contraceptive method being used and so contribute to discontinuation by some women and the non-acceptance of methods by others. Where RTI complications are common, they may create a fear of limited or delayed fertility and uncertainty about the ability to produce a healthy child. This fear and the uncertainty infertility creates over childbearing is not conducive to the adoption of family planning methods and the practice of fertility control (Frank, 1983a). Indeed, it has been suggested that efforts to

[11] Only 11 per cent of women interviewed in the 1990 Nigeria Demographic and Health Survey had ever used a contraceptive. Six per cent of currently married women and 13 per cent of never married women were currently using a contraceptive.

limit infertility may be critical to the success of Africa's fertility transition (Rosenbert, 1986).

Tackling reproductive tract infections

The emergence of incurable viral STDs such as HIV and genital herpes has meant that, for the first time since penicillin, behavioural change has again become the most important approach to STD control. However, for the curable bacterial reproductive tract infections, health-seeking behaviours, early diagnosis and early treatment remain important determinants of their incidence. Indeed there have been positive steps in this area with a growth in interest in the development of improved technologies which offer relatively cheap and easy detection and treatment of RTIs.

Generally, interventions used in STD and HIV prevention have been designed to benefit the population as a whole and combine biomedical and behavioural interventions for both men and women to lower the overall incidence of STDs. These interventions include the promotion of condom use, the control of curable STDs through diagnostic testing, screening, partner notification and treatment, and the encouragement of behavioural change. Clearly health education is central to changing the parameters that affect the rate of spread of infection: the rate of sexual partner change, the efficiency of transmission and the duration of infectiousness. Interventions may be targeted at the entire population at risk. More often, however, they are focussed on core groups such as prostitutes, who have a high number of sexual partners and who form a pool of infection which is transmitted to the general population (Anderson *et al.*, 1991). While such efforts are essential, the potential of complementary interventions must not be overlooked.

As clearly illustrated in a multidisciplinary conference held at Bellagio in 1991 (Germain *et al.*, 1992), there has been a realisation that interventions to tackle RTIs could be integrated with programs already in place in most of the developing world which involve the prevention of pregnancy and diseases, such as maternal and child health, safe motherhood and family planning programs. This is a part of a wider approach the foundation of which is the concept of reproductive health defined as the "ability of men and women to undertake sexual activity safely whether or not pregnancy is desired, for the woman to carry a pregnancy to term safely, deliver a healthy infant and be prepared to nurture it" (Sai *et al.*, 1989). Such an approach does not limit its attention to women as mothers as do most existing programs, but addresses the often neglected needs of the young, the unmarried, those with unwanted pregnancies, the infertile and those with reproductive tract infections. The integration of measures for the prevention, diagnosis and treatment of RTIs into existing maternal health and family planning programs offers the prospect of achieving a synergy that could markedly improve women's health (Wasserheit and Holmes, 1992).

This study works on the premise that an integrated and holistic approach to women's reproductive health is both feasible and desirable, and explores in relation to this approach a neglected cause of common reproductive morbidity: reproductive tract infections. The outcome of a given RTI is to a large extent dictated by the effectiveness of treatment received and the speed with which it is sought. These factors are related not only to causation beliefs, symptoms recognition and perceived outcomes but also to the nature, availability and both physical and cultural accessibility of health services. The development of appropriate and effective reproductive health care services in developing countries for the diagnosis and treatment of RTIs must depend on a knowledge and understanding of the current practises of both health seekers and health providers and of the nature of health services. However, this knowledge and understanding is, for the most part, lacking. Moreover, there appears to be a tendency to underestimate the complexities which underlie patterns of behaviour. This study seeks to redress this situation. Using Ado-Ekiti, a large town in Southwest Nigeria, as a case study it explores three important areas of consideration in the development of integrated reproductive health services for the diagnosis and treatment of RTIs: the role of health beliefs relating to RTIs in health seeking and sexual behaviours; the nature of reproductive health services, provision and utilisation; and how existing reproductive health services might be adapted to meet the needs of women for the prevention, diagnosis and treatment of RTIs.

The study explores these areas by addressing a number of questions:

a. What is the level of RTIs in Ado-Ekiti? What are the health beliefs concerning RTIs and how do women respond to symptoms consistent with a RTI?

b. Focusing on family planning and induced abortion, what services are available, how are they utilised and how are they being provided? These questions are posed in relation to the impact current patterns of reproductive health care use and provision may be having on RTIs in the community.

c. Focusing on antenatal care as a commonly used reproductive health service in Ado-Ekiti, how might it be adapted to provide for the prevention, diagnosis and treatment of RTIs?

Ado-Ekiti, the site of the case study, is a large town in Ondo State, Southwest Nigeria. The people of this region, the most highly urbanised in the country, are the Yoruba, a group extensively studied by demographers and other social scientists providing a rich fund of literature covering many aspects of Yoruba life and culture. A number of hospital and clinic-based STD studies have also been carried out in this region, providing a valuable source of background data and allowing for useful comparisons to be made. In addition to the community-based data from Ado-Ekiti the study draws on data from large scale demographic surveys including the 1981 Nigerian Fertility Survey (NFS), the 1986 Ondo State Demographic and Health Survey (ODHS) and the 1990 Nigeria Demographic and Health Survey (NDHS).

In order to achieve an understanding of the nature of health seeking behaviours and health care provision it is important to set these activities within a wider context. This is particularly true of RTIs, which can arise from a wide range of aetiologies. Exposure to infection from sexual intercourse, birth practices, contraceptive methods and abortion are dependent not only on behavioural factors, such as patterns of sexual relations, and on cultural practices and beliefs, but also on the wider socio-economic milieu as expressed, for example, in the status of women and the health and legal systems. Chapter Two presents a discussion of the demographic, cultural and socio-economic characteristics of Nigerian and, in particular, Yoruba society and the nature of health services in Nigeria and the southwest region.

Reproductive tract infections have seldom been studied by those other than medical scientists and epidemiologists. Research into RTIs by social scientists presents particularly interesting challenges. In the third chapter an outline of the methods used in the study is presented with a discussion of the problems encountered in conducting a community-based study of RTIs.

Having set the scene in Chapters Two and Three, Chapter Four goes on to examine the extent of the problem: that is, the prevalence of RTIs in Ado-Ekiti and the southwest region. Three possible outcomes of unresolved RTI are also explored: infertility, spontaneous abortion and delayed conception. This information provides the context for Chapter Five which investigates health beliefs and health-seeking behaviours relating in RTIs in Ado-Ekiti. The chapter examines perceptions among women in the study community that are potentially influential in the seeking of health care, such as the extent to which RTIs are recognised as a problem, the perceived causes and likely outcomes, and accepted cures. It also examines health management strategies of symptomatic women and how health beliefs impact upon their sexual behaviour.

Chapter Six investigates how women's reproductive health needs are being currently met in relation to contraception and abortion, and how patterns of contraception and abortion and the practices of providers may act to expose women to the danger of infection. This includes an investigation into the provision of family planning services in Southwest Nigeria, the quality of these services, the use of both formal and informal sources of contraception, and the prevalence of induced abortion in Ado-Ekiti. In the Chapter Seven, using antenatal services as an example, the potential for integrating measures for the prevention, diagnosis and treatment of RTIs with existing services is explored. Particular attention is paid to the difficulties in achieving such an integration that were identified in the Ado-Ekiti study. Finally, Chapter Eight presents concluding remarks, highlighting the implications of this study for the formulation of appropriate and effective measures for the prevention, diagnosis and treatment of RTIs among women in Southwest Nigeria.

CHAPTER TWO

FACTORS WHICH IMPACT UPON THE EPIDEMIOLOGICAL PATTERN OF RTI IN NIGERIA: DEMOGRAPHIC, CULTURAL AND SOCIO-ECONOMIC CHARACTERISTICS AND THE NATURE OF HEALTH SERVICES

Introduction

The interrelationships between health beliefs, health-seeking behaviours, the nature and utilisation of health services and the epidemiological pattern of disease must be understood in the demographic, socio-economic and cultural context in which they are embedded. This chapter describes the economic path which Nigeria has taken since independence in 1960, the effects of Nigeria's economic recession at the institutional and individual levels,[1] and how these changes might impact on sexual and health-seeking behaviours. This chapter examines a number of the population-level factors which have been identified as contributing to intersocietal and intergroup variability in rates of sexually transmitted RTIs: age composition, geographic mobility and sex ratios, women's status, sexual norms and the nature of available health services (Aral, 1992). These factors are discussed in relation to the effects they may have in determining patterns of RTI among the Yoruba in Southwest Nigeria.

Nigeria's economy - independence to the 1990s

When Nigeria achieved its independence in 1960 it was primarily an agricultural country and farm produce accounted for virtually all of its exports (Jamal and Weeks, 1988). However, at the end of the Civil War[2] there was a considerable structural change in the economy. The extractive sector (mainly petroleum) accounted for 1.2 per cent of the total GDP in 1959; by 1971 this had risen to 15.1 per cent. At the same time agriculture fell from 63.1 per cent of GDP in 1959 to 42 per cent in 1971 (Fashoyin, 1990). Oil revenue increased by 194 per cent in one year to 507 million naira in 1970, and since the 1970s has accounted for between 80 and 98 per cent of total government revenue (Fashoyin, 1990).

The Nigerian economy achieved a high rate of growth up to the end of the 1970s; during the period 1965-1980 GDP grew at an average of 8 per cent a year

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[1]The focus of this study is Yoruba women and it is the patterns of Yoruba society that are of interest here. The data used has a regional basis and is derived mainly from the southwest region (Lagos, Ogun, Oyo, Ondo, Kwara and Bendel states) which has a predominantly Yoruba population.

[2] The government of the Eastern Region seceded on May 30, 1967, igniting a 30-month Civil War, which ended in victory for the Federal Government on January 12, 1970.

(World Bank, 1988). The State had massive resources at its disposal which it used to carry out development plans nationwide. However, these were often politically motivated, ill-conceived and poorly implemented. In the 1970s spending targets were often established without systematic analysis of the relationship of goals to each other, and without a careful analysis of the impact of spending on inflation or of the public sector's capacity to meet the stated goals (Bienin, 1985). An unusually large share of Nigeria's oil windfall after 1973 was spent on expanding public services, particularly education and physical infrastructure, notably roads. Political pressures to spend money were intense and the large new oil revenues were funnelled disproportionately to the urban sector where these pressures were greatest. Agriculture received little attention despite its large role in the economy. With stagnant technology, and labour drawn into public construction and schools, agricultural output fell rapidly relative to the size of the non-oil economy. Food prices rose and per capita food production fell.

By 1981 Nigeria's economic situation had begun to change radically. In the face of a worldwide oil surplus, Nigeria's output dropped sharply with a 31.5 per cent fall in oil revenues in 1981 alone. Nigeria's dependence on the oil sector led to a severe decline in the economy as it experienced a series of shocks throughout the 1980s. The country's use of oil revenues for expanding services and its commitment to investing in infrastructure and later in heavy capital-intensive projects could not be sustained as oil revenues fell. It continued to use scarce foreign exchange to import foodstuffs and went heavily into debt as the 1980s progressed. The balance of payments deficit grew with an increase in outstanding debts; debt as a proportion of GDP rose from 2 per cent in 1975 to 122.6 per cent in 1987 (Fashoyin, 1990). Inflation rose, real wages declined and the standard of living fell throughout the 1980s. From 1980 to 1984, as real oil prices steadily fell, adjustment was made through a gradual depletion of Nigeria's foreign exchange reserves. By 1983 these had shrunk to one-fifth of their peak 1980 value (Fashoyin, 1990) and the government initiated a program of import restriction through exchange controls. In 1986 a Structural Adjustment Program (SAP) was introduced by the Federal Military Government with the support of the World Bank and the International Monetary Fund.

The SAP has entailed steps to reduce the budgetary and foreign exchange deficits, primarily through a reduction in government expenditures and by a series of devaluations of the Naira. Measures have included a liberalization of foreign exchange and internal markets and an absolute reduction in government expenditure with a shift from 'non-productive' to productive sectors (Dennis, 1992).

The performance of the Nigerian economy as a whole has improved since the implementation of the SAP, although it has been suggested by Mosley (1992) that only a small part of this improvement was due to the SAP, the larger part being attributable to such extraneous factors as better weather and an improvement in the world economy. However, in agriculture, the main sector intended to benefit from the SAP, results have

been more patchy with the growth rate for the food crops sector of GDP actually falling in spite of rising real food prices over the same period and a ban on wheat and rice imports.

Effects of Nigeria's economic decline

The rapid decline in Nigeria's economy following the windfall of the oil boom years has resulted in a retrenchment in spending on public services and a sharp drop in living standards which has severely affected both urban and rural populations. According to food balance sheets estimated for the period 1961-86, consumption of calories, proteins and fats was lower by the end of the period than at the start (Collier, 1988). Between 20 and 40 per cent of the rural population and between 10 and 20 per cent of the urban population had levels of food consumption which, averaged over the calendar year 1979, were below the WHO calories consumption norm of 2,080 calories per day (Jamal, 1986). A more recent study by Jamal and Weeks (1988) suggests that by the mid-1980s this situation had deteriorated and the rural-urban gap had narrowed as a result of a dramatic fall in urban wages.

Decline in the real incomes of the major socio-economic groups has been estimated from the annually conducted General Household Surveys (Collier, 1988). In the period 1980-1985 the average rural household suffered a 27 per cent fall in real income. Urban households headed by a wage earner had their real incomes halved, and those headed by the self-employed had an even greater reduction (54%). The data suggest that urban groups in particular suffered very severe reductions in living standards.

The economic recession of the 1980s has resulted in a general reduction in the level of employment in both the public and private sectors (Fashoyin, 1990). The urban unemployment rate rose from 4.7 per cent in 1976 to 11.9 per cent in mid-1986 (Collier, 1988) and there has been a gradual loss of job security in the public sector. Public services have also suffered, with reduced spending on health and education. In 1984 the government health sector introduced user fees and there has been a move towards selling prescribed drugs at market prices. The cost of these imported medicines increased in 1987 with the floating of the Naira and its consequent devaluation. Poor pay in the public sector and decreasing levels of morale have led to a significant 'brain drain' from educational and health institutions in particular and the public sector as a whole is suffering from the insidious effects of the economic need of employees to supplement their incomes through work in the private sector.

Inflation, increased costs and economic uncertainty reinforce inequality-based social exchanges based on need, dependency and opportunity. In situations of economic hardship women may, of necessity, be moved to use sex as an economic commodity. The pressure to succeed in difficult times may lead young women to use their sexuality to negotiate advantages from those with the power to be influential, such as teachers or

employers. There is evidence to suggest that in Nigeria 'sugar-daddies'[3] are becoming increasingly important to young women as a means of obtaining financial security and to help with increasing costs such as school fees (Barker and Rich, 1992:207). Such developments may increase the risk of women contracting a STD through their own sexual ativity and that of their partners.

The decrease in public spending on health and the associated rise in treatment costs coupled with the fall in the value of the Naira has made medical treatment in Nigeria more expensive (Orubuloye, Caldwell and Caldwell, 1991). In such a situation people may be financially less able to initiate or complete treatment for RTIs. It could be argued that the severe economic decline that Nigeria has been experiencing contributes to RTI by compelling people to undertake actions that put them at greater risk of infection and by reducing their ability to effectively treat infections. Whether this is actually the case remains to be demonstrated empirically.

The demographic picture

An important factor in determining the pattern of disease found in a population is the population's demographic make-up. For example, a high incidence of STD is often associated with youthful populations and those with severely unbalanced sex ratios (Aral and Holmes, 1990). The demographic structure and distribution of Nigeria's population and the potential effects of these factors on RTI are considered in this section.

Nigeria has suffered from a paucity of reliable population data at the national level as a result of the almost total absence of vital registration and the infrequency with which population censuses have been conducted. However, in recent years the situation has markedly improved, with the carrying out of a number of large-scale surveys both nationally and at state level, and more recently (1991) with the completion of a national census. Nigeria has high levels of fertility with, according to the Nigeria Demographic and Health Survey, an estimated total fertility rate (TFR) of 6.0.[4] However, this national statistic masks large variations in fertility between urban and rural areas, among different regions of the country and by women's level of education. Women who are from urban areas, who live in the south or who are better educated have fewer children. The south has a substantially lower TFR (5.5) than the north (6.6). There are indications of a decline in fertility in some areas, estimated to be as much as 10 per cent in Southwest Nigeria (Caldwell, Orubuloye and Caldwell, 1992). Infant and child mortality remains high. The (NDHS) indicates that nearly one in five children die before their fifth birthday with little improvement in infant and child mortality having occurred over the past 15 years. However, once again there are considerable variations in mortality rates, with

[3] Male patrons to whom sexual favours are owed.

[4] This may be a low estimate due to underestimation of births, see NDHS, 1990: 25-29.

both infant and child mortality being higher in rural than in urban areas and higher in the north than in the south.

Nigeria has a very youthful population and its age distribution conforms to the pattern characteristic of a high fertility population (Figure 1). In 1990, it was estimated that 47 per cent of the population were aged under 15 (NDHS, 1990); about one in five people in Nigeria are currently between the ages of 10 and 19 (Makinwa-Adebusoye, 1992). The latter group is growing faster than the overall population and its size is projected to reach 38.2 million by the year 2000 (United Nations, 1988). A youthful age composition implies a large and increasing sexually active population, increasing the proportion of the population who are potentially at risk of acquiring or transmitting STD.

Heterogeneity of economic growth rates and decline in the relative importance of agriculture can lead to high levels of geographic mobility through rural-urban and international labour migration. These migrations often select either men or women, creating imbalances in the sex ratio. Even where there is no such imbalance at the aggregate level, gender-specific geographic mobility disrupts specific sexual unions and contributes to higher rates of partner change. Elsewhere in sub-Saharan Africa the socio-economic, demographic and cultural changes associated with the process of urbanisation have been demonstrated to have a profound effect on patterns of marital life and sexual relations (Van Onselen, 1976; Larson, 1989).

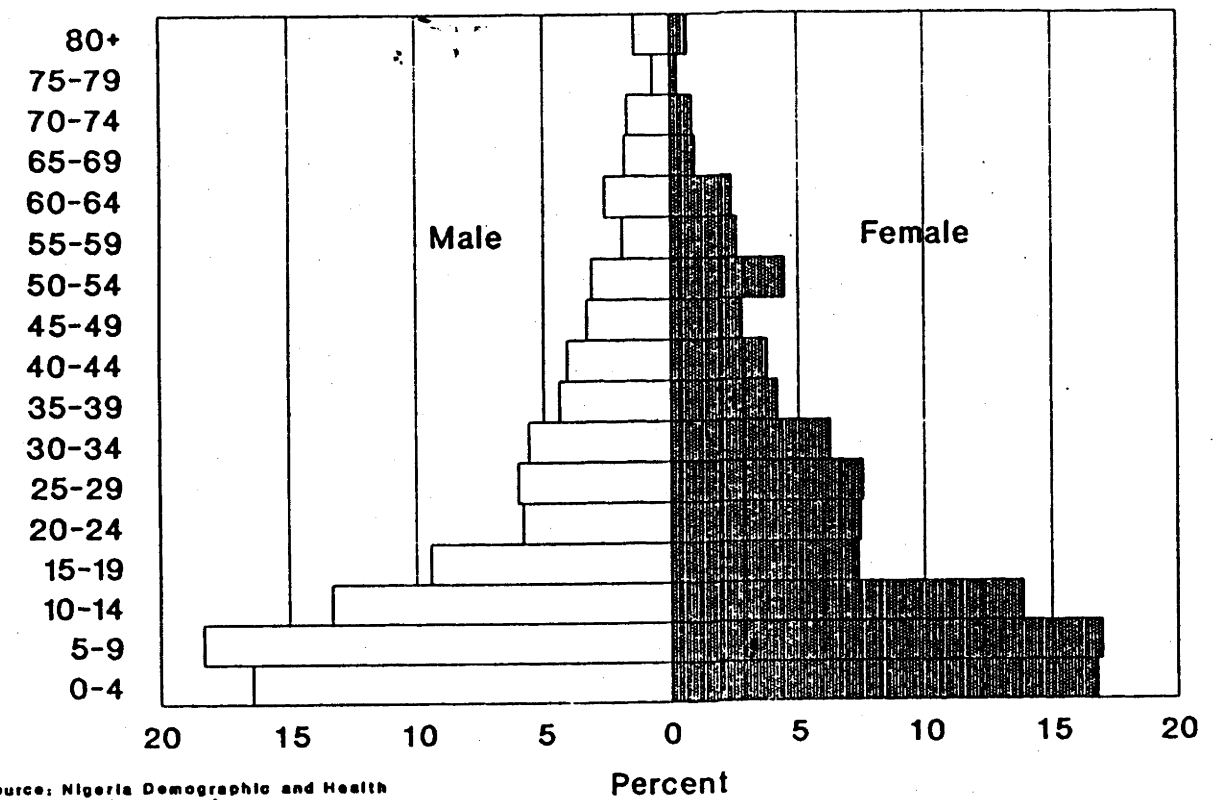
West Africa has one of the fastest growing urban populations in the world: in 1990 an estimated 24.5 per cent of Nigeria's population was urban (NDHS, 1990). For the period 1980-1985 the average growth rate of the urban population was 6.1 per cent per year (United Nations, 1989). This compares with a total population growth rate for the period 1980-1985 of 3.24 per cent (United Nations, 1991). Available evidence suggests that in the largest and fastest-growing cities migration has accounted for up to two-thirds of urban growth (Onibokun, 1989).

In Nigeria rural-urban links are formed through the marketing system and the huge number of petty traders involved in it. Many of these traders operate over long distances both within Nigeria and internationally. In addition to those movements made by local and international traders, migration is common in Nigeria and there is a complex network of relationships between wage earners in the urban centres and their relatives elsewhere (Eades, 1980). There are high levels of interaction: migrants from a particular town or village tend to go where their friends or relatives are already established and the migrant can turn to his relatives or the wider association formed of his townsmen or members of his ethnic group for help. The migration of younger, educated people to the larger urban centres has continued unabated since the 1950s, although there are signs now of discouragement.[5] Population movements raise the possibility of transmission of

[5] The problems caused by these movements were already apparent by the 1960s with high rates of male and female unemployment, particularly among school-leavers (Callaway, 1967). By mid-1986 the urban unemployment

Figure 1

Population Pyramid of Nigeria



Source: Nigeria Demographic and Health Survey 1990 (data tape)

disease by those who move to members of the community to which they move, and of exposure of those who move to various health hazards in the course of their movement and at their destination (Wessen, 1974). There is also the possibility of the transmission of disease by returning migrants to community members of their area of origin. The degree of population movement both within Nigeria's borders and internationally, and its circularity may act to increase the risk of infection, with migrants acting as active transmitters or passive acquirers.

Urbanisation in Nigeria is characterised by a fairly equal distribution of the sexes and thus sex ratio imbalances do not have a major impact on patterns of sexual behaviour. However, urbanisation is associated with changes in patterns of marital behaviour: lower levels of polygyny and of customary marriage relative to free marriage[6] and the growth of 'private polygyny' - formally monogamous men practising polygyny through having 'outside wives' or mistresses (Karanja, 1987). Cities provide many opportunities for informal and commercial sexual activity. With economic crisis and reduced employment opportunities, the sale of sexual services becomes an important potential economic resource for women. It is claimed that family control and traditional restraints, particularly over young women's behaviour, have been eroded in urban areas leading to, for example, early coital debut and multiple partners, behaviours associated with an increased risk of RTI (Nichols *et al.*, 1986; Gyepi-Garbrah, 1985; Feyisetan and Pebley, 1989).

Traditional patterns of movement between farms and towns, local and international trading and continued rural-urban migration mean there is considerable movement of population in Nigeria which has the potential to contribute to the spread of RTIs. The demographic changes and continuing rapid urbanisation which Nigeria is undergoing not only increase the proportion of the population who are potentially at risk from sexually transmitted and other reproductive tract infections, but also may create the social and economic environment in which behaviours that put people at risk of infection are more likely to occur.

Marital patterns and sexual behaviour

Predominant norms and values regarding sexuality in a society obviously influence sexual behaviour and STD rates. As yet the systematic study of sexual behaviour in Africa is in its infancy and the assessment of levels of sexual activity is to say the least problematic. It has been argued, somewhat controversially (LeBlanc,

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rate was 30 per cent for those below age 25, compared to 4 per cent among people aged 25 and above. Those with a secondary education had an unemployment rate of 46 per cent compared with 4 per cent unemployment for the uneducated (Collier, 1988). There are signs that this high rate of urban unemployment has tended to discourage rural school leavers from migrating to urban areas, leading them to turn instead to farming or to the informal sector (Collier, 1988:778).

[6] The 1990 NDHS revealed that 42.9 per cent of currently married rural women were in polygynous unions as compared to 33.6 per cent of currently married urban women.

Meintel and Piche, 1991), that there is a 'distinct and internally coherent African system embracing sexuality, marriage and much else' which is 'vulnerable to attack by all coital-related disorders' (Caldwell, Caldwell and Quiggin, 1989: 187). Somewhat less contentious is the argument that patterns of marital life in sub-Saharan Africa may act to increase exposure to sexually transmitted diseases (van de Walle, 1990: 15).[7]

Polygyny is a common feature of countries in sub-Saharan Africa (Goldman and Pebley, 1989). In sub-Saharan African populations that are not heavily influenced by migration the sex ratio below age 50 is approximately one. Given that practically all men marry, there must be some form of demographic mechanism to allow for the existence of widespread polygyny. Goldman and Pebley (1989) have shown clearly that a surplus of women to men can be readily created by a difference in the ages at which men and women first marry; this surplus is further increased if widows and divorced women have the option to remarry. The estimated average difference in spousal ages in West Africa is 8.4 years. This compares with an average difference of 6.3 years for Africa as a whole, 4 years in Asia and 3.7 years in Latin America (United Nations, 1988 cited in van de Walle, 1990:16). An obvious corollary of this pattern of late marriage for males relative to females is the creation of a large pool of young unmarried men.

These features, that is, a large spousal age differential, frequent remarriage, a large surplus of unmarried males together with the long periods of postpartum sexual abstinence within marriage commonly found in African societies, have important implications for prevailing patterns of sexual behaviour. As van de Walle (1990: 17) points out:

> Polygyny is in itself compatible with low sexual mobility, and in principle it will reduce the frequency of extramarital sex by men who must abstain from sexual relations with one wife during the postpartum period. In practice, however, polygyny often goes together with the easy remarriages of widows and divorced women, and it tends to multiply the number of sexual partners over a woman's lifetime.

Given the long period of time men often spend between initiation of sexual activity and marriage, depending on social restraints regarding the number of sexual relationships, there is an obvious potential for a large number of sexual contacts which may have important implications for the spread of STD. Young women may become infected by their husbands; older men who have had previous sexual experience with sexually mobile partners through whom they were infected with an STD (Reyna, 1975; van de Walle 1990). Or, a married man whose wife was abstaining during pregnancy or after a birth may contract an infection from an extramarital partner and subsequently infect his wife.

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[7] For a discussion of marital patterns in relation to infertility as an outcome of STD, particularly gonorrhoea, see Romaniuk, 1968a; Reyna 1975; Caldwell and Caldwell, 1983; Frank, 1983b; Larsen, 1989.

Fertility is of paramount importance in African societies and the production of offspring is seen as an essential part of marriage. Where a man's wife proves to be subfecund or infertile, he may choose to take another wife. If the infertility was due to a sexually transmitted disease then this obviously increases the risk of infection of subsequent wives. Women who become infertile through a STD infection may have an increased risk of being divorced. If these women have subsequent relations with unmarried or married men or remarry, the spread of disease may be further facilitated.

The Yoruba patterns of marital life display many of the features which within the framework discussed above may be associated with an increased exposure to STDs. Polygamy is common; the NDHS found 38.4 per cent of currently married women in Southwest Nigeria to be in polygamous unions. Coupled with polygamy is a large spousal age difference. The NFS shows for Nigeria as a whole an average age difference between husbands and their eldest wives of 12.6 years. It also showed a moderate national level of marriage instability, with 85 per cent of ever-married women still in their first marriage. Dissolutions of marriage were mostly due to divorce and separation rather than widowhood. The incidence of remarriage was found to be high with 70 per cent of women whose first marriage was dissolved having remarried by the time of the survey. For ever-married women only 4.3 per cent of the total time duration since first marriage had been spent outside marriage. Prolonged periods of postpartum abstinence extending up to three years have been a common feature of Yoruba society (Caldwell and Caldwell, 1981). There is evidence, however, that the period of abstinence is becoming shorter, particularly among educated women.[8]

Two important factors in the risk of STD transmission are multiple partners and the partners' sexual histories. Although a number of studies have been carried out to try and develop research methodologies to gather data on sexual behaviour in sub-Saharan Africa, this field of research is still in its infancy. In the Ekiti region Caldwell and colleagues have carried out pioneering work which suggests that polygyny, for females, is strongly associated with extramarital relations (Caldwell, Caldwell and Orubuloye, 1990). In rural areas, polygynous wives were two and a half times as likely to have partners outside marriage as monogamous wives. In the urban area they were one and a half times as likely to do so.

Monogamous males were revealed as having more extramarital relations with a greater range and number of sexual partners than polygynous males. Overall, single men had the highest number of sexual partners. Married men choose mostly single girls; married women found extramarital partners mostly among married men. Caldwell *et al.* postulate that this is made mathematically feasible by husbands having more outside

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[8] An analysis based on surveys carried out in Ibadan in the 1970s found that among Yoruba women with at least some secondary schooling who were aged under 45, monogamously married and practising family planning, the period of postpartum abstinence was as short as eight months (Caldwell and Caldwell, 1981).

affairs than wives, with a relatively small number of highly sexually active girls making up a considerable proportion of the men's partners.

There is evidence that the traditional importance attached by the Yoruba to female virginity at the time of marriage has diminished (Fadipe, 1970; Eades, 1980; Orubuloye, 1981) and studies from rural and urban areas suggest that for both males and females premarital sexual relations are not uncommon. Caldwell, Caldwell and Orubuloye (1990) found in their Ekiti study that 40 per cent of rural wives and 30 per cent of urban wives reported being virgins at marriage. Feyisetan and Pebley (1989), employing data from a survey of ever-married women aged 15-49 in nine cities across Nigeria, found that 57 per cent of the 3,590 Yoruba respondents reported premarital sexual activity. An analysis of the 1990 NDHS showed that 43.5 per cent of urban, single (never in a union) women aged 15-24 were sexually experienced, with over one-fifth having experienced their first sexual intercourse by their sixteenth birthday (Makinwa-Adebusoye, 1991).

A number of traditional features of Yoruba marital life such as polygamy and prolonged postpartum abstinence may act to increase the risk of women being exposed to the risk of STD. The decline in the importance placed upon female virginity and the increased sexual freedoms associated with modern urban life may also contribute to the spread of infection.

Women's status

The social status of women and gender power relations can influence sexual behaviour and levels of RTI in a number of important ways. Where women are less educated, are economically and socially dependent on men and where they lack power in interpersonal relationships, they may have no choice but to expose themselves to the risk of infection through their own activities or those of their partners. The status of women and gender relations are important not only in terms of exposure but also in terms of prevention and cure; for example, the accessibility of health care may be compromised by gender-specific practices such as *purdah* (Prevention of Maternal Mortality Network, 1992).

Women belonging to the Yoruba ethnic group have long been recognised as having considerable economic independence and material power. Among the Yoruba, food processing and marketing are the preserve of women. Yoruba women monopolise trading, have access to land through their husbands and have rights to much of the farm products they help to produce. In the polygynous system the basic budgetary unit is the mother and her children, with each wife being responsible for the day-to-day expenses of herself and her children. Traditionally marriage is an alliance of two families rather than of two individuals. Thus, within marriage, the wife always remains the representative of her own family; women draw considerable strength from the support of their families of origin and would not think of submerging their personalities in those of their husbands.

As Kaberry (1952) described for the Bamenda of Cameroon, women exercise *de facto* rights which they do not possess *de jure*. Thus, while formally women are subordinate to the authority of the male head of the household, in practice, and in meeting the exigencies of day-to-day life, it is frequently the woman who makes the decisions.

The Yoruba wife, whilst deferential towards her husband, maintains her economic independence with a separate budget from her husband. Relations, especially in polygynous marriages, may, to the Western eye, appear distant, with the husband and wife having their own separate social networks. Educated couples, especially those in monogamous marriages, may enjoy more shared responsibilities and companionship, but the wife often maintains her economic independence and there may be little overlap between the friendship networks of husbands and their wives (Karanja, 1981). The autonomy of Yoruba women is strengthened by their organisation into social groups which provide both financial and emotional support, with women's associations and organisations playing an important role on both the local and national level.

Although it is not a decision to be taken lightly, financial independence means that a woman can support herself and her children, making separation or divorce a more viable option. As Orubuloye, Caldwell and Caldwell (1992) point out, traditionally Yoruba women are given some control over sexual decision-making in that they have a major role in ensuring that the socially prescribed, extended periods of abstinence after childbirth and during pregnancy and menstruation are adhered to. Although there is no doubt that a husband has the right to demand both sex and reproduction, it appears that, in urban areas at least, the woman has undisputed right to refuse sex should her partner be infected with AIDS or another STD, and she will not be forced to allow her husband his conjugal rights should she be faced with the risk of infection. Thus, in terms of sexual decision-making and control of her own sexuality, the urban Yoruba woman appears to be in a better position than many of her sisters in other parts of sub-Saharan Africa. Such relative empowerment does not preclude infection, for the woman may often not know whether her partner is infected and she may have a much less clear right to refuse sex due solely to her partner's risky behaviours. However, it does give the woman a real option to act should she be made aware of the danger of acquiring an STD from her husband or partner.

The status of Yoruba women, as gauged by educational levels, economic independence and *de facto* decision-making, is high compared to women in many other developing countries. However, that is not to deny that there is a wide gap between the relative positions of males and females and their access to control of resources in Southwest Nigeria (Omideyi, 1987). A recent policy recommendation document of one of Nigeria's foremost women's organisations complained (Women In Nigeria, 1985:6-7):

> Men remain dominant, wield and disperse power. Despite the crucial and basic contributions of women to the economy of the nation, their indispensable labour

is unacknowledged, unpaid-for and poorly taken into account in national development plans.

Health services in Nigeria

The early diagnosis and treatment of curable sexually transmitted disease plays an important role in reducing the continued spread of infection. This section examines the Nigerian health service and the health care options open to Yoruba men and women who are suffering from, or suspect themselves to be infected by, a RTI.

The Nigerian health system

Following independence in 1960, the overall political and budgetary emphasis of Nigeria's health policy was on expansion of teaching hospitals and medical training. National plans for the expansion of health services were suspended with the beginning of the Civil War in 1967, and in the period following it, 1970-74, when emphasis was on the replacement of infrastructure lost during the hostilities and on curative care. Under the Third Development Plan (1975-80) the the Basic Health Services Scheme (BHSS) was initiated. The objectives of this scheme were to provide comprehensive curative care through the new expanded facilities, to promote appropriate health technologies for rural areas and to introduce innovations in the classification and training of health manpower (Nigerian Federal Ministry of Health, 1978). However, financial problems and budgetary restrictions meant that the scheme was never fully realised. Between 1979 and 1983 the government encouraged the notion of free, comprehensive medical care. Free health care policies were pursued by many states during this period and in some areas government subsidies made up as much as 90 per cent of the revenue of public health institutions (Ogunbekun, 1991). The 1981-1985 Fourth National Development Plan stated the government's commitment to provide adequate and effective primary health care to 80 per cent of the population by 1985, this provision to be extended to the entire population by the year 2000. However, only since 1986-87 has primary health care been strongly supported financially and through formal policy by the federal government (Parker, 1991).

The stated objective of Nigeria's national health policy is to 'achieve health for all Nigerians based on the national philosophy of social justice and equity' (Ransome-Kuti *et al.*, 1989). States are given the freedom to determine for themselves how to achieve this goal, and hence there is a wide diversity across states in the types and means of service provided. The organisation of stationary government facilities is structured on a three-tier system. The primary tier operates on the local government level and generally provides maternal and child health (MCH) care, preventive care and basic curative care. The second tier, at the state level, is made up largely of district hospitals. These hospitals provide mainly curative care, although preventive services are also available.

The tertiary tier, which operates at the federal level, is made up of teaching hospitals and other higher public health institutions. While policies and guidelines are set by the Federal Ministry of Health (FMOH), policies for service provision are determined at the state level by the State Ministry of Health (SMOH), and actual implementation and provision of care is handled by the Local Government Health Department (LGHD). The FMOH formulates health policy for the whole country. In addition, it provides hospital services through teaching, specialist and federal government staff hospitals, access to the latter being restricted to staff of the federal civil service and their dependents. The FMOH co-ordinates the activities of the SMOHs and the LGHDs and provides them with technical and financial assistance.

Stock (1985) identifies the division of authority between the three levels of government as a major barrier to effective health care planning, leading to fragmented development and excessive duplication. It has also been argued (Ogunbekun, 1991) that the centralisation of such activities as the purchase of equipment and hospital consumables and the recruitment and deployment of personnel in the SMOHs, combined with the smaller authorities' minimal control over resource generation and distribution, has meant that public health institutions are slow to respond to changes in the pattern of demand for and consumption of health services.

The health sector has suffered severely under the Structural Adjustment Program. Health expenditure as a percentage of total federal government expenditure fell from 1.9 per cent in 1981 to 1.5 per cent in 1989 (Ogunbekun, 1991). Although total health spending decreased by only 9 per cent in real terms between 1981 and 1988, within the same period health expenditures per capita fell by 25 per cent (Ogunbekun, 1991).

A fall in real spending and the depreciation of the Naira have resulted in persistent shortages of drugs and medical supplies. Public health institutions have had to increase user charges and introduce fees. Registration and practice fees, paid to the state government by private hospitals, maternity homes and pharmacies, have been raised as a means of boosting the revenue of SMOHs.

The poor state of health sector finances is also a reflection of inefficiencies within the system, with resources being wasted through poor distribution and management. This has been coupled with a crisis in the distribution of health personnel. A trend towards specialisation, the concomitant decrease in the number of general practitioners and the maldistribution of health personnel have continued to create shortages of health professionals (Ojo, 1990). The situation may have worsened in recent years: anecdotal evidence suggests that as a result of poor pay in the public sector and a rapidly decreasing level of morale, an increasing number of doctors and nurses are seeking more profitable employment in countries such as Saudi Arabia. The movement of highly skilled personnel to the West and to the Gulf States has had serious effects on

whole departments in medical schools and hospitals. An estimated 2,000 Nigerian doctors, most of them consultants, emigrated between 1985 and 1990 (Alubo, 1990).

Despite efforts at decentralisation, the Nigerian health system suffers from a domination by urban based curative services. Hospital services consumed about three-quarters of FMOH finances for most of the 1980s (Ogunbekun, 1991), and health services continue to display a serious urban bias. Coverage by health services is low for the Nigerian population as a whole and is especially limited for the poor and for rural populations. In 1985 approximately 35 per cent of the population nationwide was estimated to have access to modern health services (Nigerian Federal Ministry of Health, 1988), the standard measure of accessibility for rural areas being either a distance of up to five miles or up to two hours of travel time from the nearest health facility. There is a great deal of regional variation in access to health services, with travel distances being greater in the north than in the south or east of the country. The southwest of Nigeria is relatively well served (Onokerhoraye, 1980; Akeredolu-Ale, 1985).

A rough measure of the availability of modern health services is provided by physician-to-population ratios. In 1960 it was estimated that there was one physician for every 74,000 people in Nigeria; by 1980 this ratio had risen to one physician for every 13,000 people, well above the average of 1:21,000 persons in all sub-Saharan Africa (World Bank, 1984). However, whilst the number of health professionals increased substantially during the 1970s, most of the physicians continued to practice in urban areas and many were in private practice (Ojo, 1990).

Public health services in Nigeria have since independence been skewed in favour of curative hospital care. This was reinforced during the 1970s and 1980s and it was only in the mid-'80s that primary health care became a priority. However, the economic recession and the adjustments to it have had serious detrimental effects on the health system and have stunted the growth of primary health care.

Other sources of Western medicine

Apart from the government health services there are many different private-sector sources of Western medicine. These include private clinics and hospitals, company-provided health care for employees, and services provided by non-governmental organisations (NGOs) supported by overseas aid agencies, religious donor groups and revenues generated at the health facility. The demand for private medical care seems to be growing, judging by the 37 per cent increase in the number of private medical establishments registered between 1983 and 1987 (Ogunbekun, 1991). In particular there has been a proliferation of private maternity centres (Pearce, 1980). While this could be construed as a result of consumers' ability and willingness to pay, it must be emphasised that the increase is mainly in urban areas where in many cases the fees are paid by the employer. The use of private health institutions is not restricted to the relatively affluent and subsidised employees; it may be chosen by indigents over

public health institutions because of the more 'user-friendly' structure of fee payment in operation.

Other important sources of Western medicine are pharmacies and patent medicine stores, where not only pharmaceuticals but also diagnosis, advice and treatment such as injections are often given. Other sources, generally unregulated and illegal, include injection salesmen, itinerant hawkers of drugs and health workers from the public sector who supplement their incomes through taking on private patients (Stock, 1985).

Church-based health care

Beginning in the 1980s there has been a huge upsurge in the Christian 'new churches'. These vital congregations demonstrate an openness to the Nigerian culture and cater to the emotional and physical needs of the people. Physical healing is one of the most important manifestations of these churches and they constitute an important alternative source of health care. Faith healing is carried out in the Aladura 'praying' churches, which are descendants of African churches such as the United Native African Church which emerged in the 1890s in protest at some features of the Christianity of the missionary societies. Two of the largest Aladura churches are the Christ Apostolic Church and the Church of Cherubim and Seraphim. The main feature of the Aladura movement is the use of the power of prayer to cure sickness. This is based on the theory that disease is a punishment for sins by God or His minsters and can only be cured by the moral repentance of the sufferer (Peel, 1968). Using medicine is wrong because it shows lack of faith, and foolish because it relies on man rather than on God. The Aladura's methods of healing include visions, prayers with congregational responses and the use of holy water, candles, holy oil or soaps. Aspects of traditional religion including drumming, dancing and trance induction have been incorporated into the Christian services of many of these churches.

Traditional medicine

Traditional healers are widely used in both urban and rural settings. Oyebola (1980) has produced a comprehensive classification of Yoruba traditional healers: the main categories are diviners (*babalawo*), herbalists (*onisegun*), shrine priests (*olorisa*), traditional 'pharmacists' (*awon*) and specialists, including those who treat conditions that afflict mother and child (*elewe omo*), birth attendants (*iya abiye*) and those responsible for ritual circumcision (*olola*). These are not rigid divisions and there may be some overlap of function - for example, with diviners using herbs in treatments and herbalists on occasion using simple methods of divination.

Symptoms and sicknesses which are short, self-limiting and familiar can be put down to dietary indiscretions, chills and minor traumata, but if a disease persists in spite of simple counter-measures, suspicions will be aroused about the operation of personal

and spiritual forces whose nature must be properly defined and divined before the patient can hope for relief. The *onisegun* deal with the commoner, more easily recognised disorders; for 'deeper' problems such as those arising from witchcraft, the afflicted person may consult a *babalawo* ('father of secrets'). These priests of the *Ifa* cult specialise in divination and consult oracles for the diagnosis and cause of a patient's illness. Many *babalawo* also offer treatment for those with mental illness.

Rituals, gestures and objects are an essential part of the *babalawo's* therapy and represent in the material world what is taking place in the spiritual world. The *babalawo*'s healing addresses the patient's place in the natural and supernatural world and seeks to restore balance and equilibrium in the social relations that are the ultimate cause of their misfortune.

Health services in Nigeria and RTI

The health care options potentially open to men and women in Southwest Nigeria are wide and include government and private hospitals and clinics, pharmacies, church-based health care and traditional healers. However, whilst the southwest is, compared to the rest of Nigeria, relatively well served by government health services (NDHS, 1990), it would appear that financially these services are becoming less accessible to certain sections of the population.

Many RTIs are curable, and with timely, effective diagnosis and treatment the complications arising from them can be reduced and the spread of STD diminished. Both in the West and in Nigeria these services have been provided by specialised STD clinics. In countries such as Britain and Australia, the specialised services offer free diagnosis and treatment to any persons who suspect themselves to be suffering from an STD or to have been exposed to infection. In Nigeria, as in many resource-poor countries, STD clinics are few and are restricted to major cities. Ibadan, the largest city in Nigeria, has only one recognised STD clinic (Adekunle and Lapido, 1992:298). In the current economic climate and given the considerable strains being put upon government health services by the lack of funds, declining morale and the loss of higher level personnel, it is unlikely that whether there will be resources for the expansion of these specialised clinics. The situation suggests that an alternative approach may be necessary. Private hospitals and clinics, traditional and spiritual healers, pharmacies and other outlets are popular sources of health care. Their potential, together with government services, for providing timely and effective diagnosis and treatment of RTIs in a manner which is socially, culturally and financially accessible to all sections of the population remains to be explored.

Concluding remarks

Socio-economic, demographic and cultural factors impact on the incidence and prevalence of disease in complex ways. Features of Nigerian and particularly Yoruba

society make Southwest Nigeria a particularly interesting place in which to study RTIs. Important aspects of Yoruba society such as norms for marital and sexual behaviour including polygamy, a large spousal age difference and prolonged periods of postpartum abstinence are, it has been argued, associated with an increased exposure to sexually transmitted diseases. However, other aspects of Yoruba society such as the economic independence and, relative to may other sub-Saharan African societies, the high social status of Yoruba women could act as influences mitigating the potential risk enhancing effects of these factors.

Demographic characteristics of Nigeria's population and the socio-economic changes which have ensued in recent decades doubtless impact on RTIs and STDs in particular. The youthful age composition of the country's people implies a large and increasing sexually active population whilst population movements between cities, towns and villages may contribute to the risk of exposure to and transmission of RTI. Rapid urbanisation and a stark economic need arising from the universal effects of Nigeria's precipitous economic decline contribute to changes in behaviour which may increase the risk of infection. Nigeria's economic recession and its effects on the nation's health service means that there are less resources with which to deal with the outcomes of any such increase. Moves to strengthen the primary health care system have floundered in many states and, aggravated by the 'brain drain', public health facilities are losing resources. Relative to the rest of the country Southwest Nigeria has many government health facilities. However, as national economic pressures lead to a cut in funding and an increase in costs, these services are becoming less affordable and less available to people in need. At the same time the need to prevent, diagnose and treat RTIs becomes increasingly imperative as the threat of HIV/AIDS in Nigeria becomes a reality.

CHAPTER THREE

METHODOLOGY

Introduction

In Western countries most data on women's reproductive health are obtained from hospital or clinic records. In less developed countries the paucity of statistics and the high degree of selectivity reflected in these sources means that they can at best provide only a limited picture of the situation prevailing in the population as a whole. There have been very few community-based studies of women's reproductive health[1] and the use of social survey techniques to explore this aspect of women's health in less developed countries is as yet in its infancy. This chapter describes the various methods used in the present study to explore aspects of women's reproductive health in the Southwest Nigerian town of Ado-Ekiti. After describing the study community and the method used it discusses some of the problems and difficulties encountered in the course of the study.

Ado-Ekiti

Ekiti is in the northeast of Ondo State in Southwest Nigeria (Figure 2 and Figure 3). The population and society of the Ekiti region is essentially Yoruba, although the Ekiti people feel themselves to be a distinct subculture of the Yoruba people and employ a recognisably different dialect (Caldwell *et al.*, 1990). The society is strongly Christian and mainly Protestant with African syncretic churches forming a very active minority.

Ado-Ekiti is a large town with a population of around 150,000, located in Central Ekiti. It encompasses and is surrounded by large hills and rocky outcrops and, except during the harsh dry season, the scenery is lush and verdant. Historically, during the era of British rule, Ado-Ekiti was the administrative centre for the Ekiti district. Although to a large extent superseded by the development of the state capital at Akure, it continues to be an important local administrative, educational and commercial centre and is the headquarters of the Ekiti Central local government. Ado-Ekiti and its immediate hinterland is noted for high educational levels and is the site of Ondo State University and of a Federal Polytechnic.

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[1] These include: Arya *et al.*, 1973, 1980 (study setting: Uganda) ; Goncalves *et al.*, 1984 (study setting: Brazil); Bang *et al.*, 1989 (study setting: India); Wasserheit *et al.*, 1989 (study setting: Bangladesh); Zurayk *et al.*, 1993 (study setting: Egypt)

Figure 2

Map of Nigeria

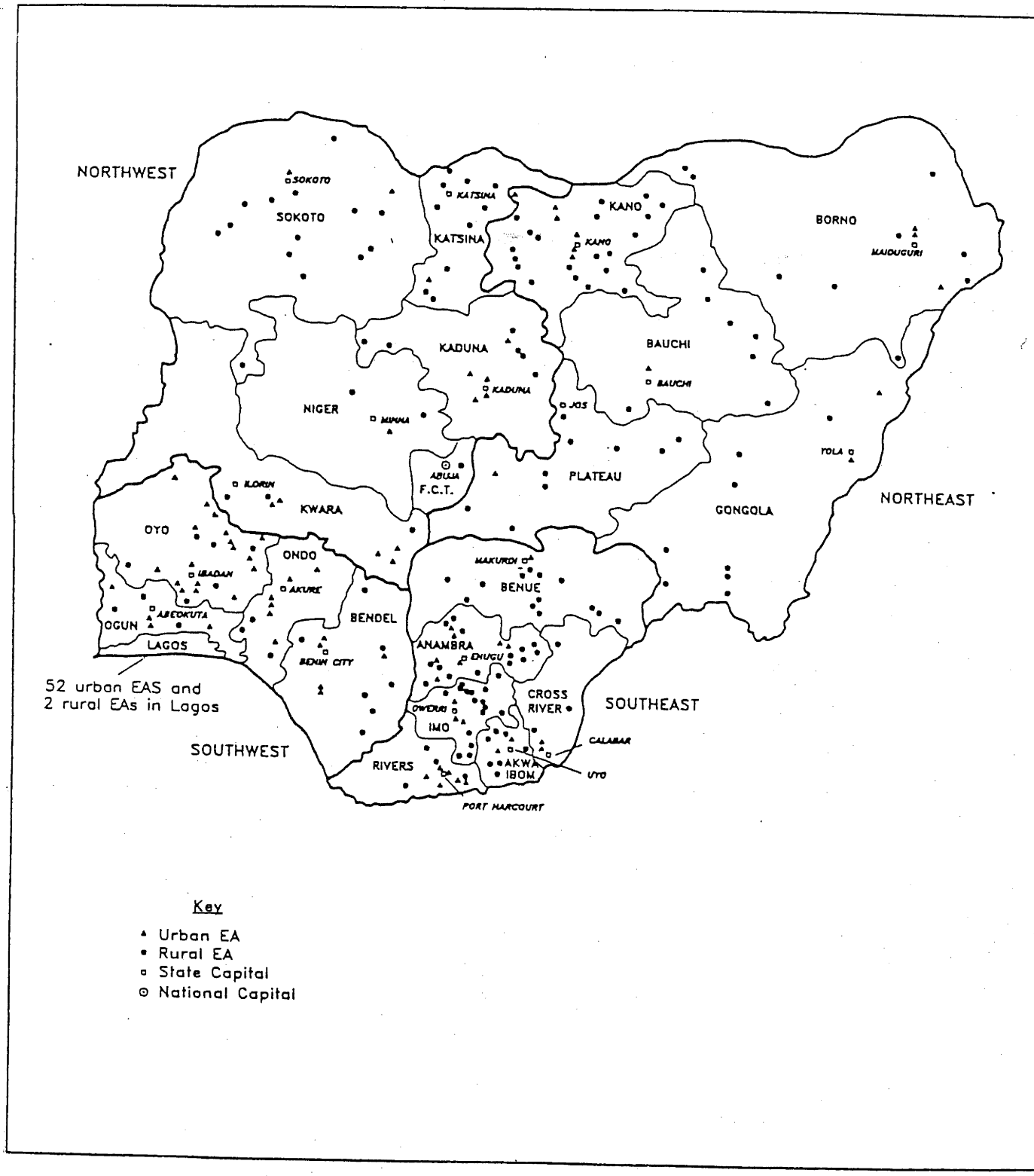
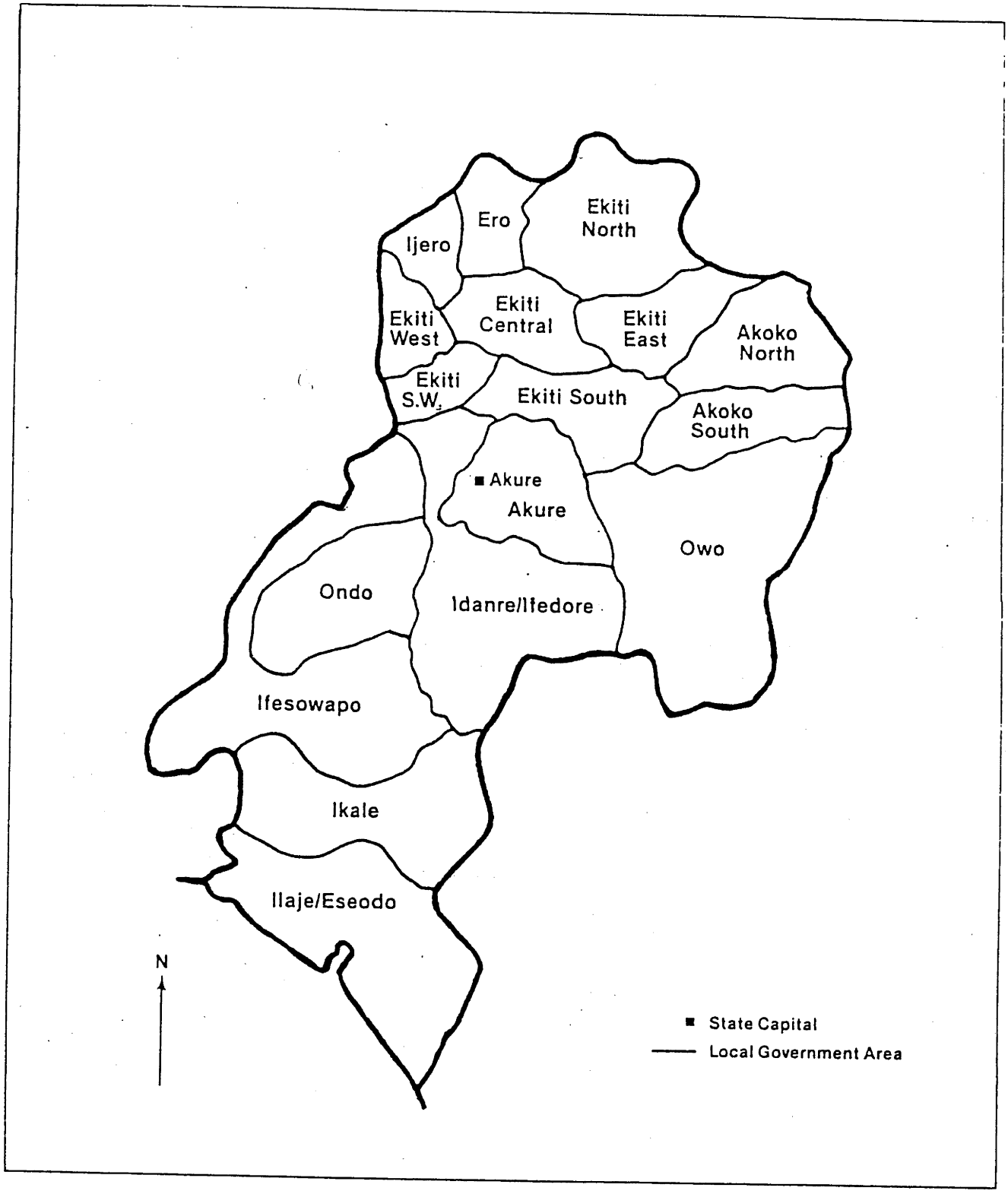


Figure 3

Map of Ondo State



Saw mills, a quarry and a large textile mill are among the industrial sites in Ado-Ekiti. In addition there are a number of banks and other financial institutions. In the centre of Ado-Ekiti is a large market where traders sell a wide range of products. There are also various smaller neighbourhood markets. Ado-Ekiti has a large number of other commercial outlets, including pharmacies, book and record stores. Car repair and servicing outlets are also numerous.

There is a great range in the size and types of housing found in Ado-Ekiti, from the mud brick and corrugated iron roofed homes found in the older, central part of town to the large, new, solid brick and tile roofed residences found in the outlying areas. The majority of households in Ado-Ekiti have electricity and access to piped water, although few have water pumped into their homes.

Ado-Ekiti is the largest kingdom of the Ekiti federation and the Ewi (the *Oba* or king of Ado) is the richest of the Ekiti *Oba*s. Traditional events such as the New Yam Festival and the *Egungun* (Masquerade) Festivals continue to be enthusiastically celebrated and there is a strong regard for tradition both in Ado-Ekiti and the Ekiti region as a whole. Patrilineal descent groups were associated with the worship of lineage-specific deities (*orisha*) in Ekiti. *Orisha* worship continues to some extent, although most Ekiti Yoruba have converted to Christianity. Membership in a patrilineal descent group continues to be important in defining one's place in Ekiti society and most people maintain some sort of lineage and extended kin ties.

Community support

To be successful, the investigator conducting a community-based social science or health survey must win the support of the inhabitants and effectively convey to them the value, rationale and aims of the project. This was particularly true of the present where the questions to be posed were sensitive and potentially embarrassing both for the individual and her family. It was extremely important that the aims of the study were clearly communicated and the need for asking these types of question was explained. There were four obvious channels through which the study could be introduced to inhabitants of the sample areas: local government, the traditional ruler and chiefs, women's associations and churches. However, although it was important to gain the approval of these bodies, care had to be taken to retain independence from them and not to allow the project to become too closely identified with any one of them.

In the central areas of the town of Ado-Ekiti, although less so in the more newly established outer suburbs, the most effective route through which the investigation could be introduced and explained to local residents was the king and the area chiefs and their wives. The nature, aims and value of the study were formally presented to a council of chiefs, which is presided over by the king and held on a weekly basis. The king endorsed the study and urged the chiefs and their subjects to co-operate to the full. This provided the study with much credibility. The area chiefs, who hold meetings of

residents within their communities on a weekly basis, allowed these meetings to be used to introduce the study to the local inhabitants, and to give residents an opportunity to pose any questions they might have regarding the study.

Women's associations are particularly strong among the Yoruba. By targeting women's associations it was possible to draw on the network that exists between female market traders. This was extremely useful in disseminating information about the aims and nature of the study. Women's groups that convene on a regular basis at many of the churches were also used as a route through which to introduce the project to the local community. In addition, the local government provided introductions to prominent members of the community and gave permission for access to the various local government-run health services such as health centres, maternity clinics and family planning clinics.

Interviews with Health Providers

Interviews were conducted with various health providers in Ado-Ekiti. These providers represented both the formal and informal sectors of health care and included doctors, nurses, traditional healers, a church midwife, sellers of traditional medicines and staff of pharmaceutical retail outlets. The aim of these interviews was to learn about women's morbidity and health seeking behaviour from those in the community who had experience and specialised knowledge of it. In addition these discussions provided an opportunity to further disseminate information about the research project. Using discussion guidelines (Appendix 1) the interviews were held either in groups or individually. Where English was inappropriate a research assistant provided simultaneous translation from English to Yoruba or Ekiti dialect. Where the respondents agreed, in addition to note-taking, the interviews were taped and later transcribed in full.

The first series of interviews was carried out with staff from the Ado-Ekiti State Specialist Hospital (AESH). Discussions were held with the chief matron from the out-patients department, the nurses and doctors from the antenatal and gynaecology clinics, and the chief medical officer in charge of the hospital. The interviews were carried out in the hospital and ranged in duration from 40 minutes to over two hours. Further interviews were held with the chief matron and principal doctor from the Catholic mission hospital, Assumpta, and with staff from the Ondo State University Health Centre. Discussions were also held with the chief medical officer of a large private hospital, with staff from two of the local family planning clinics and with the staff of three of the local government clinics, including one in an outlying village.

The traditional healers who were selected for interview represented two of the main types of traditional healer to be found in Ado-Ekiti, the herbalist (*onisegun*) and the diviner (*babalawo*). The healers interviewed had been introduced by contacts made through earlier group discussions. After several preliminary meetings and gifts of kola nuts the healers agreed to discuss the types of reproductive health problems they

encountered, their presentation, causes and cure. The *babalawo*, who could speak some English, was unwilling to be taped but was patient with the copious note taking that took place. The herbalist spoke no English but agreed to be taped, and the discussions which were carried out through a translator were later transcribed in full. The numerous discussions, which were held at various intervals throughout the period of research (July 1991- February 1992) in the interviewees' homes, not only gave insights into the work of these two healers but also led to introductions to other traditional practitioners including a birth attendant (*iya abiye*) and a healer who specialised in the illnesses of women and children (*elewe omo*).

An important health provider in Ado-Ekiti is the church. Several of the 'new churches', and in particular the Christ Apostolic Church (CAC), provide not only healing through the use of prayer and blessed oil or water, but also facilities for antenatal and maternity care. A series of discussions was held with a midwife who provides antenatal and maternity care in a maternity centre attached to one of the churches belonging to the CAC. These interviews were held in the maternity centre and were conducted in Yoruba with a research assistant providing translation. The interviews were taped and later transcribed.

Visits were made to various vendors of medical supplies. Discussions were held with market sellers of traditional medicines, with the owner of a patent medicine store and with the pharmacist at a local chemist.

In addition to interviews with health providers a review was made of medical records from the AESH. An estimate was made of the proportion of women attending the out-patients' clinic in the last year with gynaecological problems, and an assessment was made of the nature of the complaints with which the patients were presenting. The gynaecology clinic records were also reviewed. As the Specialist Hospital is a referral hospital for the wider Central Ekiti district, the review was restricted to the records of Ado-Ekiti residents. A careful examination was made of medical records for the previous year, and the symptoms, diagnosis and outcomes were noted.

Group discussions with women in Ado-Ekiti

Fundamental to the success of any survey is the development of a questionnaire which is appropriate to the culture in which it is to be used and in which questions minimise the possibility of misinterpretation by the respondents. Recognising the fact that the women to be interviewed about their reproductive health might have definitions of disease and illness different from those recognised by biomedicine, it was necessary to investigate the local semantics of illness and to explore some of the prevailing reproductive beliefs. Discussions were held with 10 groups of 3-7 women (totalling forty women) in Ado-Ekiti. The women were of varying age, educational level and marital status. However, as far as possible the members of each group were similar in these characteristics so as to avoid any inhibition arising from differences in age

education or marital status. At least one group interview was held in each area in Ado-Ekiti to be surveyed. The respondents for these group sessions were recruited through various channels, including women's associations, hospital domestic staff, university students and personal contacts. There was a purposive selection of group participants based on the nature of the group being assembled. For example, one group was made up of young single women in higher education who were recruited through contacts made at the university; another group was made up of middle aged married market traders.

Each group discussion was held in the home of one of the group members, with the exception of two groups, one of which was held in a shop and the other held in a community hall. Eight out of the ten discussions were conducted in Yoruba or the Ekiti dialect, the others being held in English. The discussions were led by a research assistant who acted as a facilitator. They were informal, the only stipulation being that women should speak one at a time. Following a discussion guideline (Appendix 2), the facilitator directed the conversation to address topics relating to reproductive health, encouraging women to talk about the symptoms, causes, severity, possible long term effects, management, treatment and prevention of various illnesses. All the discussions were taped, transcribed in full and translated into English. The investigator was present at all discussions to take notes, to advise the facilitator and at times to play a diversionary role distracting those not invited to take part so as to enable proceedings to continue uninterrupted. As the investigator could speak neither Yoruba nor Ekiti dialect fluently she was unable to participate directly in the discussions. Although the facilitator did carry out some simultaneous translation, to translate all the responses would have interrupted the normal flow of the conversation. Consequently, the onus was on the facilitator to guide the discussion, to pursue any interesting points that arose and to draw the conversation away from dead ends. Tapes were transcribed and translated as soon as possible after the discussions so that any problems could be identified and suggestions made as to how procedures could be improved. The group discussions lasted around 40 minutes on average; although groups often stayed together with the research assistant and the investigator for some time after the discussion guideline had been completed. These periods of free conversation were often important in bringing to light new avenues of investigation to be followed up later. As a whole the discussions were extremely fruitful, with participants freely sharing their experiences and knowledge. There was on occasion a tendency for one or two members of a group to try and dominate the discussion. However, the facilitator proved skilful in drawing the conversation away from the more vocal members and in encouraging other participants to take a more active part.

Draft questionnaire

Before leaving for the field, drawing on examples from previous demographic and health surveys such as the World Fertility Survey and the Demographic and Health

Survey in addition to suggested criteria laid down by the WHO (1989), a framework for the questionnaire was developed. This included the subjects of inquiry to be covered, the ordering of the subjects, skip patterns and ideas on wording and coding possibilities. Later, using the information obtained from the group interviews and discussions with health providers concerning the semantics of illness, reproductive health concerns and areas of sensitivity, a preliminary questionnaire was developed to be piloted in the field. The questionnaire was written in English and translated into Yoruba. Imprecise translation can introduce serious biases so all efforts were made to make the translation as comparable as possible to the original. The questionnaire was translated into Yoruba by a researcher experienced in conducting social science surveys in the area. It was then retranslated from Yoruba into English by another senior researcher. Any distortions that emerged were discussed in terms of the concepts and variables to be measured and appropriate translations found for distinctions which are made in English and not in Yoruba, and vice versa.

The questionnaire was made up of six sections. Having first gathered basic information on facilities shared by members of the household, the first section asked questions concerning the respondent's place of birth, age, educational background and present employment. Section two sought information on the respondent's marriage history and characteristics of her husband or regular partner. Section three enquired about children ever-born and surviving, breastfeeding, abstinence and whether the respondent was currently pregnant. Section four asked questions about knowledge and use of contraceptives. In section five respondents were asked about any problems they had experienced in conceiving or in bringing a pregnancy to term and what help or treatment they had sought. This section also included questions relating to induced abortion. After recording the respondent's pregnancy history, where appropriate, questions were asked about the use of antenatal and maternal delivery services and conditions relating to maternal ill-health. Section six asked respondents about their experience of various symptoms and illnesses, treatment options sought, the perceived causes of their illnesses and means of prevention. This section concluded with a series of questions relating to sexual behaviour.

Symptoms check lists are commonly used in health surveys for measuring perceptions of ill health (Kroeger, 1983; Ross and Vaughan, 1986). Their advantage lies in the fact that they act to jog respondents' memories, and to overcome variations in respondents' ability to verbalise their complaints, in their definitions of illness and in people's willingness to describe their complaints (Kroeger, 1983). When the questionnaire was in the first stages of development the plan was to rely solely on a symptoms check list to investigate perceived experience of symptoms consistent with a reproductive tract infection among respondents. However, the qualitative work suggested another approach and it was decided to include not only a symptoms check list but also questions relating to local illness categories. In this way it was possible to

examine not only the perceived experience of symptoms consistent with a reproductive tract infection but also how the categorisation of symptoms affected choices in health management such as preferred treatment options.

The diagnostic signs associated with reproductive tract infections were carefully researched and incorporated into a set of questions. Respondents were asked a series of questions on whether they currently had symptoms consistent with a RTI or had experienced any such symptoms in the last 3 months. There are as yet no clear guidelines on the optimum recall period for a morbidity interview. Kroeger (1983) recommends a recall period of two weeks, although he does concede that more severe illnesses are likely to be remembered over longer periods. In the Ado-Ekiti study the decision was made to ask about symptoms experienced currently and in the last three months. The rather long recall period reflected a compromise that had to be made between the possibility of under-reporting of symptoms and health services utilisation; lack of accuracy due to loss of recall, and the desire given a small sample size to identify as many women as possible given a small sample size, who had recently experienced these symptoms.

Each question asked about one sign only so as to reduce the possibility of confusing respondents and to aid in the interpretation and analysis of their reported symptoms. The symptoms check list included menstrual irregularities, menstrual pain, deep internal pain with intercourse, lower abdominal pain, abnormal vaginal discharge and genital sores or ulcers. For each symptom acknowledged by the respondent, she was further asked about its severity and nature, whether treatment had been sought, who provided that treatment and, if help was received from more than one source, the order in which they were consulted. Respondents were also asked if they had ever experienced this or other symptoms on the check list before, the number of times it had occurred, the timing of the last episode, and whether and how it had been treated. As women may not have known exactly which category the source of health care fell into (e.g. government hospital, private clinic etc.), interviewers were instructed to write the name of the source in full.

All respondents were asked whether they had ever experienced any of a number of locally recognised illnesses. For each condition experienced the respondent was asked the number of times they had experienced it, the timing of the last episode, the symptoms, whether treatment was sought and if so from whom. Interviewers were instructed to glean as many details as possible on the nature of the symptoms experienced during these illness episodes, by specifically asking about the presence or absence of particular symptoms such as diarrhoea or vaginal discharge. Such efforts acted as a cross-check on local and individual differences in illness categorisation, and meant that some degree of comparison could be made with information elicited through the symptoms check-list. The final post-pilot questionnaire is reproduced in Appendix 3.

Community Survey

Sample frame and mapping for household survey

Ado-Ekiti (Figure 4) was divided into two zones, the outer and the inner zone . The inner zone was divided into 25 areas, of which the five areas of Irona, Ereguru, Dallimore, Matthew and Okeyinmi were randomly selected. The outer zone was also divided into 25 areas, from which the four areas of Textile, Adebayo, Ajilosun and Mary Hill were randomly selected. After visiting all the areas in this zone to make sure that there were not large differences between them the decision was made to select fewer areas in the outer zone. This reduced the time and energy required to obtain public transport to these areas, such transport being extremely problematic in Ado-Ekiti. As there were no pre-existing detailed maps of Ado-Ekiti (other than those belonging to the census office to which access could not obtained) it was necessary to completely map each area. Ten areas were mapped including Idemo, an area in the inner zone which was randomly selected for the pilot study. As many of the older, more traditional areas of Ado-Ekiti do not have recognisable streets or lanes, creating a cartographic representation of the positions of dwelling units was sometimes difficult. However, one great advantage was that the majority of dwellings in Ado-Ekiti had already been marked in preparation for the ensuing national census. This greatly aided in their identification.

In each of the randomly selected areas a survey was made of all households in each dwelling unit, identifying the number of households in each dwelling unit and the age, gender, ethnicity, residency and relationship of members of each household.[2] Persons eligible for completion of an individual survey were women aged 17-49 belonging to the Yoruba ethnic group who were resident in Ado-Ekiti. The age group 17-49 was selected because previous studies had shown that most women in this region first have sexual intercourse at age 17 or above (Caldwell, Orubuloye and Caldwell, 1990). The areas in each zone were constructed so that each area had approximately the same population. In the inner zone all eligible women in every fifth household were interviewed, giving an approximate sampling fraction of one twenty-fifth. In the outer zone all eligible women in every fourth household were interviewed, also giving an approximate sampling fraction of one twenty-fifth.

Recruitment and staff training

One of the important decisions to be made in terms of research methodology in this study was the choice of interviewers. Initially nurses were considered as being suitable for recruitment as interviewers. However, following discussions with a number of nurses at various health facilities in Ado-Ekiti it was decided that, although there may

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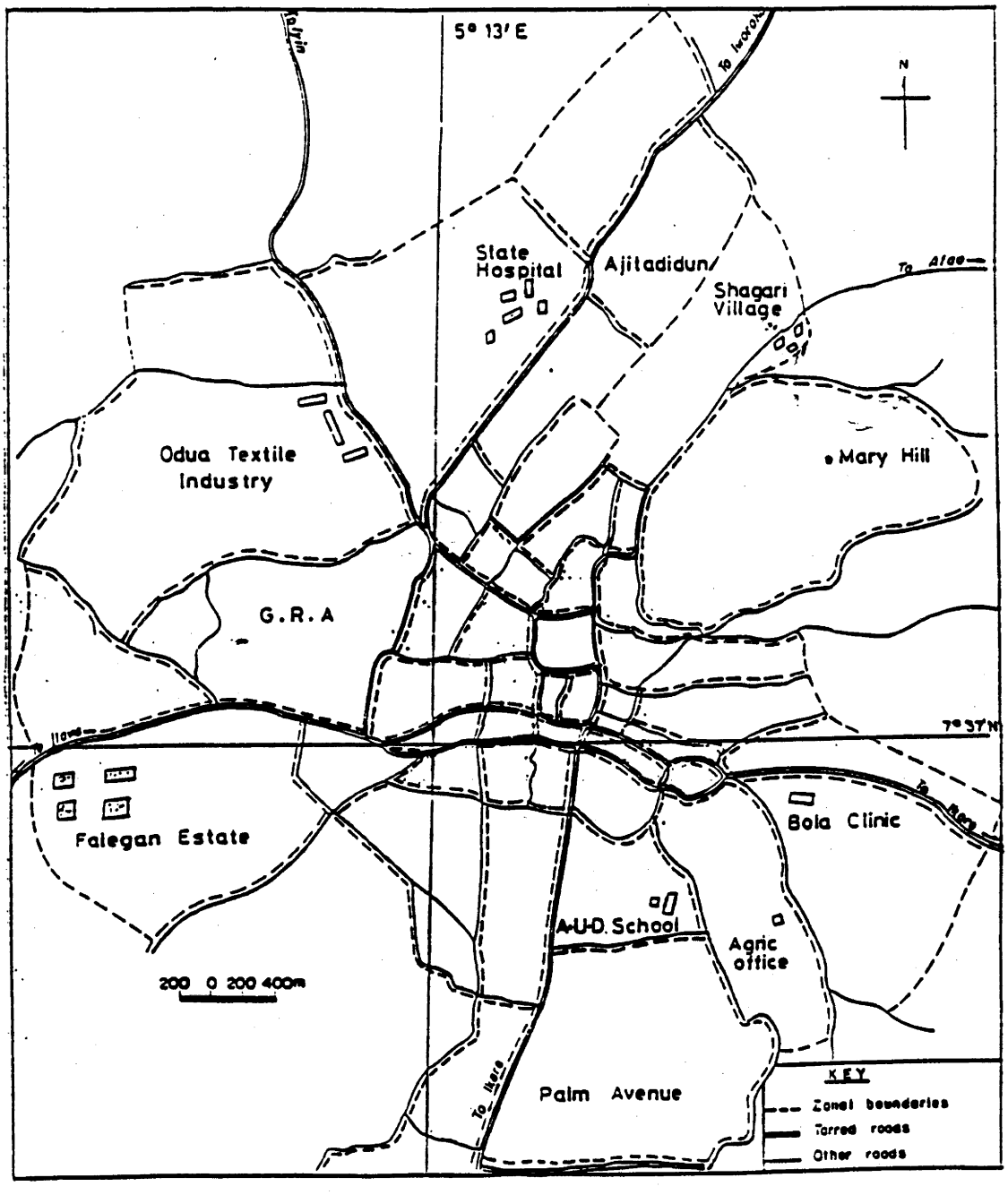
[2] See Appendix 4 for a copy of the household schedule

Figure 4

Map of Ado-Ekiti



have been some advantages in the use of nurses in terms of their being women who were respected and trusted within the community, there were also potential disadvantages. The most important of these given the nature of the study was that nurses might tend to 'over diagnose' and to make inappropriate biomedical interpretations of responses. Also, being so closely identified with the Western medical establishment, there was the danger that respondents might be unwilling to discuss freely with them their health seeking behaviours involving non-formal health care providers such as traditional healers or market drug sellers. Ultimately, the decision was made to recruit interviewers not on the basis of their knowledge of biomedicine but on the basis of their ability to understand and appreciate the aims of the study, enthusiasm to learn, responsibility, interpersonal skills and their full command of the English language. Given the sensitivity of the questions and the need for a familiarity with the local dialect and community, interviewers had to be both female and indigenous to Ado-Ekiti. Contacts at the university, polytechnic, hospital and local government led to the recruitment of six women on the understanding that employment was dependent on the satisfactory completion of training and on their performance in the pilot survey. The six women were all in their mid-twenties to early thirties, four were married with children, all had completed some form of higher education (university, polytechnic or teachers' college), and all were indigenous to Ado-Ekiti.

Each interviewer was given a manual containing a brief synopsis of the aims and nature of the project, tips on effective and non-biased interviewing, and details on the asking of various questions - for example, those relating to age and the number of children. The interviewers were requested to carefully read through the manual before the start of the training sessions. The ten sessions, each lasting approximately 3 hours, were spread over 10 days and included discussions with health providers and with experienced researchers. A visit was made to a family planning clinic where samples were given of each of the contraceptive methods on offer. For each method, including traditional methods, the family planning worker described how it was used and where it could be obtained. There was a discussion about the range of names given to the various methods, including, for example, brand names. The interviewers were encouraged to ask questions and there was considerable discussion of personal experiences, perceptions and misconceptions. To conclude there was a role-play session where the interviewers practised talking about contraceptives and describing methods to respondents.

Also included as part of the training program was a talk by one of the doctors from AESH on the common reproductive problems that women experience, their significance and potential long term consequences. This was followed by a discussion session. A particularly valuable contribution was made by an experienced researcher and interviewer who had conducted a number of social and demographic surveys in Ado-Ekiti and other areas in the region, including surveys on sexually transmitted diseases. She shared with the interviewers her experience with handling potentially sensitive

questions and addressed problems such as how to obtain privacy for the respondent at the time of interview and how to draw out reluctant interviewees.

Apart from these activities, the interviewers were made fully conversant with the questionnaire, why the questions were being asked, how to ask the questions and how to follow the skip patterns. Emphasis was laid on the importance of the role of the interviewer in terms of motivating the respondent and of obtaining reliable and valid data through her skill in asking the questions, probing, recording the answers and her interaction with the respondent. The interviewers were informed of the importance of handling interviews in a standardised and non-biased way and of being non-judgemental in their reactions to answers which they received to questions. Instructions were given on how to introduce the study to the respondent, emphasising the confidentiality of the survey, the importance of accuracy and the neutrality of the data collection process.

Particular attention was paid to questions concerning age and dates of birth and marriage. Using local reference works and personal knowledge a calendar of historical events, salient to the community, was drawn up, to be used as an aid to estimating ages and locating dates (Appendix 5). Interviewers were also encouraged to use other materials that might be useful in aging the respondent or her children; for example, immunisation cards.

Taking turns at being respondent and interviewer the interviewers carried out a number of simulated interviews to practise using the questionnaire. This was important not only as a means of getting to know the questionnaire but as a way of overcoming any initial embarrassment which the interviewers might have felt in asking some of the questions, so that this would not be conveyed to respondents in 'real' interviews.

Early in the training one of the interviewers identified herself as being particularly able. Being the eldest of the group she commanded the respect of the other interviewers, yet was very adept at creating a team spirit. She was chosen to act as supervisor. Her role was to work with the investigator to ensure that the interviewers were carrying out their work efficiently and effectively and to help build a sense of teamwork. During the survey the interviewers and supervisor reported to the investigator each day. Every other day the investigator, the supervisor and the interviewers met as a group to discuss experiences, difficulties, ideas and progress. Given the different interviewing schedules and the interviewers' family commitments these meetings were often difficult to arrange, but they proved extremely valuable in maintaining morale and in generating new thoughts and approaches.

In addition to the recruitment and training of interviewers, meetings were held with staff at the three medical facilities to be involved in the project, AESH, the Catholic mission hospital, Assumpta, and the local government maternity clinic, with the aim of introducing them to the study. It was particularly important that the staff of AESH were made aware of the project so that they did not inadvertently send away survey respondents who had been invited to the hospital. The medical and laboratory staff to be

involved in the project were introduced to the procedures and protocols to be used and were invaluable in suggesting modifications appropriate to the conditions in which they were to be carried out.

Testing of survey tool

A vital question that must be answered before a survey can be launched is whether the questionnaire to be used is actually asking what it is intended to ask. This is particularly the case with questions relating to health and disease. The sensitivity of the health section of the questionnaire was tested on 60 women attending the out-patient clinic of AESH. The patients were interviewed during the waiting period between registration and consultation with the doctor. Of these women 11 (18.3%) reported current symptoms consistent with a reproductive tract infection. Ten of the eleven were found to have clinical evidence of a RTI while the eleventh woman was found to be suffering from an ectopic pregnancy. Due to time and manpower constraints it was not possible to test the specificity of the questionnaire. However, 18 of the women who reported themselves asymptomatic were randomly selected for examination and found to be without signs or symptoms of a RTI. The testing of the questionnaire in a hospital environment was not ideal. The patients attending the out-patients department may not be representative of the population as a whole. Also the hospital environment was different from the home environment in which the interviews were to be carried out. In the out-patients waiting room respondents had no other calls on their time and perhaps were more likely to be compliant and receptive to a health survey in a clinical atmosphere. Interviews in the hospital out-patients department could necessarily give only an indication of how successful the questionnaire would be in the field. However, they did suggest that the questionnaire would be comprehensible to respondents and effective in identifying women with current symptoms of a RTI.

A pilot survey was carried out in a randomly selected area of the inner zone called Idemo. The five interviewers were each given a part of the area to cover. All households in each dwelling unit in the sample area were to complete a household schedule. Once these schedules had been completed each interviewer was assigned a number of households in which all eligible women were to be interviewed. In total, 50 individual questionnaires were completed. Respondents were classified as having symptoms consistent with a reproductive tract infection if they had any of the following:

1. Lower abdominal pain (without diarrhoea) with or without abnormal vaginal discharge, menstrual irregularities or pain with intercourse, not associated with a recent delivery or abortion or with delayed menstruation.
2. Abnormal vaginal discharge (with or without vaginal itching).
3. Genital sores/ulcers.

Respondents who identified themselves as currently suffering from symptoms consistent with a reproductive tract infection were given an appointment card (Appendix 6) with times at which they could attend AESH for a medical examination and free treatment.[3]

In the pilot study the interviewers were asked specifically to identify questions that were hard to read as written, ambiguous, difficult for the respondent to understand or that caused her to feel embarrassed or ill at ease. They were also asked to comment on the structure of the questionnaire - the sequencing of the questions, whether there was adequate space for recording the answers, and errors in skip patterns or in interviewer instructions.

The pilot study brought to light a number of unforeseen difficulties. These included problems in the questionnaire skip patterns, inappropriate or badly phrased questions and incorrect Yoruba translations of the English. Based on the pilot study it was decided to drop a question which asked "Have you ever had a venereal disease?" This was partly due to poor response but more importantly to the need not to give the impression that the survey was concerned with STDs *per se*. It was felt that as repeat visits were necessary for symptomatic women it would be better to avoid any possible embarrassment for the respondents by omitting overt references to STDs. The exclusion of this question also made the survey more acceptable to local leaders, whose assistance was needed in establishing community support for the study. A final adjustment was that, due to poor performance, one of the interviewers was dropped from the project, leaving four interviewers and one supervisor.

Conducting the survey

After completing the pilot and making final changes to the questionnaire the survey was initiated. It was carried out between November 1991 and January 1992. In total 455 valid individual questionnaires were completed.

Supervision and validation

The supervisor and the investigator worked together to ensure that the response rate, the quality of completed questionnaires and the quality of interviewing were as high as possible. Any refusals were reported to the investigator each day so that arrangements could be made for a return visit. Also every evening each questionnaire completed that day was checked by the investigator to see whether it was legible, whether the skip patterns had been followed appropriately, whether answers obtained were complete enough to permit coding and whether verbatim answers had been fully recorded rather than summarised or paraphrased. Consistency within each questionnaire

[3] For a copy of the medical examination report see Appendix 7

and, where appropriate, with the questionnaires of other eligible members of the same household was also checked. If any questions had been left unasked or if there were obvious inconsistencies, the interviewer was asked to return to the respondent to try and clarify the answers. Checking the interviewing itself was more problematic as the investigator was not fluent in either Yoruba or Ekiti dialect. Randomly, interviewers were asked to tape their interviews. These tapes were translated by the supervisor and any problems in interviewing technique were identified. The supervisor sat in at one of each of the interviewers' interviews each week and routinely checked a sample of interviews to make sure that they had actually taken place. In addition each day for a morning, afternoon or evening session one of the interviewers acted as a translator for interviews conducted by the investigator.

It is often said that respondents become less willing to participate as the questions become more embarrassing or intimate. Unfortunately validation of answers to such questions is extremely difficult to obtain. The exceptional studies where the answers given to questionnaires have been compared with known facts about the respondent, for example Bleek (1987), are to say the least rather discouraging. There is no way to avoid the lying respondent. However, while it would be dishonest to claim complete confidence in the veracity of every reply in every questionnaire, good community rapport, well designed questions and thoughtful, sensitive interviewers greatly reduced the danger of deliberately misleading responses.

For a number of questions there were ways in which the validity of answers given by respondents could be checked. In households having more than one eligible member it was possible to cross-check answers concerning household and family characteristics. Where there were discrepancies the respondents were visited again so as to clarify the situation. Where available, interviewers asked to see immunisation cards for young children so as to validate their birth dates. Although a comprehensive evaluation of the reported utilisation of health facilities was beyond the scope of the study, some efforts were made to compare reported service utilisation with actual records to assess the degree of correspondence between the two. Records of antenatal visits and surgical operations were available for consultation in AESH, two of the local government clinics, the two mission hospitals and one of the larger private hospitals. Although these records were not themselves without error they did provide some measure of the accuracy of reporting by respondents. On the whole the records of patients who had attended these facilities in the last year were easily accessible and reasonably complete. To check for over-reporting, where an event is reported but no record is found, is relatively easy.[4] However, without computerised record systems, checking for under-reporting, where a record is found but no event is reported is much more time consuming and problematic. Thus, as this evaluation exercise was only a

[4] There is of course the possibility of flawed record keeping which may lead to an over-estimation of over-reporting

small part of the whole project and given time and money constraints, it was decided to restrict the investigation to the over-reporting of antenatal visits and surgical operations over the past year.

A search was made for the records of a random sample of 25 per cent of the 46 women who had reported attending antenatal clinics in the last year, and for records of the eight women who reported having had a surgical operation in the last year, at any of the health facilities at which records could be consulted. The degree of correspondence between reported attendance and medical records was extremely good, both for antenatal clinic clients (96 per cent correspondence) and for those who reported surgical operations (100 per cent correspondence).

Response rate

Failure to collect data from a high percentage of those selected in a sample is a major source of survey error. Every effort was made to achieve a high response rate so as to avoid a biased sample. In the household survey interviewers were instructed that should a suitable respondent (that is an adult resident of that household) not be present at the first visit, then they should make a second and if necessary a third visit, making sure that the times of these visits were varied so as to increase the chance of a finding a respondent at home. All households in each study area were visited and a household schedule completed for each. In total 1792 households were visited. Of these 92 (5.1%) were unoccupied and 15 (0.8%) had no adult respondent present. Of the 1685 households where a suitable respondent was found 28 (1.6%) refused to take part in the study. 1319 households (80.3%) had women eligible to respond to the individual questionnaire. Following the protocol of interviewing all eligible women in every fifth household (inner zone) and every fourth household (outer zone), 349 households with a total of 469 eligible women were selected for interview. Six women (1.2%) refused to be interviewed and eight women (1.7%) were not found at home. In total, 455 individual interviews were completed.

For the individual questionnaire interviewers were instructed that if the respondent was not home at the first visit they should call back five times at various hours both on weekdays and at weekends. A questionnaire was successfully completed for the majority of eligible women with whom an interview was requested. However, a small number of women were reluctant to be interviewed. If a research assistant reported that a respondent was unwilling to be interviewed, the investigator and the research assistant made a return visit to the respondent to encourage her to participate. In most cases respondents subsequently agreed to participate.

Clinical study of antenatal clinic population

In order to place the reporting of symptoms by respondents surveyed into perspective it was important to establish some indication of the magnitude of the

problem of RTIs among women within the community. It was decided to use clients of antenatal clinics for this purpose. There were three main advantages in using antenatal clinics to investigate the prevalence of RTIs in Ado-Ekiti. First, this population was reasonably representative of women of reproductive age in the town. The use of antenatal services is extremely common in Ado-Ekiti. Of the 211 women in the survey who had had a birth in the last 5 years almost 94 per cent had made at least one antenatal visit. Of these 45 per cent had visited a government or mission hospital, 25 per cent had attended a government maternity clinic, 18 per cent had visited a private clinic and 11 per cent had attended a church-run maternity centre. Second, although internal gynaecological examinations are not a routine part of the antenatal visit they could be introduced relatively easily without too much disturbance to the clinic routine. Third, pregnant women already actively seeking preventative care through the antenatal clinic were thought likely to be responsive to a study which offered diagnosis and treatment of conditions detrimental to their health and that of their unborn children.

However, there were also some disadvantages to using this population. Women attending antenatal clinics can be seen as a low-risk population in that women who are actively trying to become pregnant are less likely to be promiscuous and will avoid frequent changes of partner (Osoba and Onifade 1973). Furthermore, there is some indication that many women in this community abstain from sexual intercourse on missing their period in order not to precipitate a miscarriage. Another important point to note is that women who have become sterilised by a reproductive tract infection will not fall into this group. Neither will those women who choose to use informal services such as traditional healers and traditional birth attendants or who do not seek antenatal care of any kind.

In order to represent the antenatal clinic population of Ado-Ekiti as accurately as possible, clients were examined in three clinics; AESH, the Catholic mission hospital and a government maternity clinic. Antenatal clinics are held at each of these facilities twice a week. At each clinic session the study was explained to waiting antenatal clients. They were given the opportunity not to be involved. However, there were no refusals and all clients at the clinic sessions were examined and tested with the exception of eight women whose advanced pregnancies made a speculum examination inappropriate. In total 11 clinic sessions were attended, two at the local government clinic, five at AESH and four at the mission hospital, contributing 25, 40 and 35 per cent respectively of the total sample of 113 women. As women come to antenatal clinics every four to six weeks (until the period towards the end of their pregnancies) there was little chance of a woman being sampled twice at the same facility. However, it is not unknown for women to attend antenatal clinics at more than one facility simultaneously. An updated list was kept of all women who had been examined and this was checked at the time of interview for each client. On only one occasion did a client present for examination twice (on her second presentation the woman was informed that there was no need for a repeat

examination). It should be noted that all the women involved in the study were Yoruba and resident in Ado-Ekiti. Women who attended a clinic on a study day who were not Yoruba and/or not resident in Ado-Ekiti (totalling nine women) were given an examination and treatment if they wished, but were not included in the study sample.

Four doctors were involved in interviewing, examining and taking samples from the antenatal clinic clients. Three of these doctors were attached to the obstetrics and gynaecology department of AESH; they carried out the interviews and examinations at AESH and at the government maternity clinic. The fourth doctor was the Chief Medical Officer at the Catholic mission hospital who carried out the interviews and examinations on the antenatal clinic clients attending that facility.

The questionnaire for the antenatal clients (Appendix 8) solicited basic socio-economic and demographic information including information, on contraceptive use, a complete birth history, and a brief medical history. It included questions on the respondent's number of sexual partners, ever and in the last year. However, these questions were thought by some members of the medical staff participating in the study to be inappropriate and so were not asked of all respondents. Hence, they were excluded from any later analysis. The questionnaire was administered to the client in an examination room in the clinic. Following its completion, the client underwent a physical and gynaecological examination. Four samples were taken from each client: a blood sample, a vaginal swab and two cervical swabs. All specimens were taken to the microbiology laboratory at AESH for analysis.[5]

Coding, data entry and analysis

Following the example of previous surveys, including the Westinghouse Demographic and Health Survey series, it was decided to try and keep open-ended questions to a minimum so that to a large extent the questionnaire could be pre-coded. Pre-coding offers the advantages of time saving and comparability with other large-scale surveys. However, it also carries the danger of the questionnaire being too rigid and inflexible to capture nuances in responses. With the latter in mind, every effort was made in the drafting of the questionnaire and during the pilot to ensure that the codes were comprehensive and appropriate. If at any time the interviewer felt that the response to a question did not fit the pre-code options or was in any way doubtful about how an answer should be recorded she was instructed to record the response verbatim. A number of questions, particularly those which were open-ended, were post-coded. The coding schemes, which were developed from the pattern of recorded responses, used narrow categories which were then made wider. This allowed the original detail to be retrieved and made it possible to change the breadth of categories into which specific responses were placed, depending on analytical needs.

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[5] For details of sampling and laboratory procedures see Appendix 9

Distinctive missing data codes were ascribed to distinguish between different types of missing data. Where no answer was ascertained (for example, because the interviewer missed the question), where the respondent refused to answer, and where the response was 'don't know'.

Data entry was carried out using dBase III plus. The data entry program was set up to include valid range checks. After transferring the data to a main frame computer, coding and data entry errors were checked using SPSSX. Frequencies and crosstabulations were run for valid range checks, to check that answers were consistent with skip patterns and to check for any illogical combinations. Analysis of the data was completed using SPSSX and EPI Info. The latter was used solely for data entry and analysis of clinical data.

Methodological problems and issues

Vital to the success of the study was eliciting the support and interest of women in the sample areas. As described earlier introductions from community leaders were invaluable. The period of mapping also proved extremely useful because it enabled the investigator to make herself known in the area and provided residents with an opportunity to raise questions about the aims and intentions of the project and for the investigator to emphasise how much their co-operation would be appreciated. However, the degree to which a rapport could be built up with the residents varied considerably by area. Areas in the centre of Ado-Ekiti are quite densely populated, and people tend to spend a proportion of their time out of doors, sitting, chatting with their neighbours and carrying out household tasks. Here, in the more ancient, traditional areas of the town, the chiefs have considerable influence and there is a strong community spirit. In the more affluent suburbs residents are much less accessible. Many houses are walled and there is little street activity. In these more recently built-up areas of town there is no immediately obvious conduit, such as the chiefs, through which information can be disseminated. Hence, here far more than in the more central areas of town interviewers encountered respondents who had no prior knowledge of the study and were faced with the prospect of interviewing them 'cold'.

In explaining the purpose of the study a careful balance had to kept between emphasising the advantages of taking part in the survey (for example, the opportunity of a free medical examination and treatment of reproductive tract infections) and of raising expectations too high. At times it was difficult to explain why some households were being visited and not others. Inevitably, women from households not in the sampling frame or who were ineligible due to their age or ethnicity would come forward and request to be interviewed. More serious was the problem of women with reproductive and other health problems that fell outside the scope of the study. In two cases where women presented with reproductive health problems other than reproductive tract infections the women were assisted in obtaining treatment for their conditions

All respondents were assured of complete confidentiality. As far as possible women were interviewed in private in their own homes. This was often difficult to achieve and involved the interviewer making repeat visits to find a time convenient for the respondent. As all eligible women in a household were interviewed, where a woman was found to be symptomatic and so requiring a repeat visit, diversionary tactics had to be used to avoid unwarranted invasion of privacy. For example, if an interviewer had to return to a symptomatic respondent in a household in which more than one woman had been interviewed, she carried all the questionnaires with her so that she could check the answers of other respondents who might be present and so not single out the symptomatic respondent.

Once a woman had been identified as currently symptomatic all efforts were made to persuade her to come to the hospital for a clinical examination. The possible consequences of untreated reproductive tract infections were made clear to the respondent (without trying to cause undue alarm), the nature of the clinical examination was described, and biomedical treatment options were explained. Those women who were invited to the hospital but who did not attend were revisited twice and on each occasion a time, as convenient as possible to the respondent, was scheduled for the medical examination.

On the first series of these revisits it was discovered that four respondents had actually come to AESH only to have been sent way again by a newly appointed nurse who had not attended any of the staff meetings in which the study had been introduced. Unfortunately only one of these women could be persuaded to return.

One of the major problems faced in the study in relation to the clinical investigation was that its success was totally dependent on the goodwill of the medical staff who agreed to participate in the project. Inevitably there were occasionally other calls on the time of the medical staff. These were often unforeseeable and so symptomatic women from the household survey who had been invited to the hospital sometimes faced lengthy periods of waiting. There were also logistic problems such as in obtaining supplies. However, all efforts were made to comply fully and exactly with the procedures and protocols that had been established for the study and there was no question that a high level of quality in clinical and laboratory diagnosis was maintained.

At the end of the survey round in each area all respondents were invited to a convenient location, such as a community hall, where a doctor and the investigator made themselves available to answer any questions that may have arisen during the survey. A number of women did use this opportunity to discuss contraceptive methods and options; others came to find out more about reproductive tract infections and the problems associated with them. Advice was given on various treatment options, laying particular emphasis on the ineffectiveness of treatment regimens which use inappropriate dosages or where the program is not completed. Also emphasised was the need for the woman's husband and partners to receive appropriate treatment. Although it was felt

that, in all fairness to the community, this opportunity for consultation should be provided, it is possible that women who otherwise might have come to the hospital may have used this as an alternative option, so increasing the chance of symptomatic women not attending AESH for an examination.

Characteristics of the surveyed population

The background characteristics of the population surveyed in Ado-Ekiti are shown in Table 3.1. The proportion of women in the younger age groups is higher than that in the older age groups which is what one would expect with an expanding population. It probably also, to some extent, reflects immigration of young people in Ado-Ekiti from surrounding rural areas. Ekiti is noted for the high levels of education found in the region. This is reflected in the surveyed population with 59.5 per cent of women respondents having been educated above primary school level. The NDHS found that in the Southwest region as a whole 44 per cent of women had been educated to this level.

Sixty-five per cent of respondents described themselves as currently married. The survey did not allow for women who are not currently married but are living with a partner to be identified. Therefore it underestimates to some extent the proportion of women in a current union. The NDHS found that for Nigeria as a whole the proportion of women who were 'living together' with their partner was 7.4 per cent. In the Ado-Ekiti survey of women currently married 34 per cent were in a polygamous marriage. This proportion is comparable to the 33.6 per cent found among urban respondents in the NDHS. Over ninety per cent of women interviewed in Ado-Ekiti were sexually experienced. Three-quarters of never married women reported ever having had sexual intercourse. Three-quarters of the women surveyed had ever been pregnant and almost half had had a birth in the five years preceeding the survey.

The population surveyed were mainly Christian. A large proportion belonged to the 'new churches' which are very popular in Ado-Ekiti, particularly among young people. The population surveyed also reflects Ado-Ekiti's Muslim community.

Table 3.1
Percent distribution of women by selected background characteristics, Ado-Ekiti 1992.

Background characteristic	Number of women	Per cent
Age		
15-19	46	10.1
20-24	112	24.6
25-29	99	21.8
30-34	65	14.3
35-39	57	12.5
40-44	37	8.1
45-49	39	8.6
Education		
None	59	13.0
Primary	124	27.3
Secondary	214	47.0
Higher	57	12.5
Missing	1	0.2
Marital status		
Never married	132	29.0
Currently married	296	65.0
Widowed	8	1.7
Divorced	6	1.3
Separated	13	2.8
Type of marriage		
Polygamous	100	33.7
Monogamous	196	66.3
Sexually experienced		
Yes	422	92.7
No	33	7.3
Ever pregnant		
Yes	345	75.8
No	110	24.2
Birth in last 5 years		
Yes	211	46.3
No	244	53.7
Religion		
Muslim	81	17.8
Catholic	64	14.1
Protestant	120	26.4
"New churches"	179	39.3
Missing	11	2.4
All women	455	100.0

Source: Ado-Ekiti data tape 1992.

CHAPTER FOUR

ASPECTS OF FEMALE REPRODUCTIVE HEALTH IN SOUTHWEST NIGERIA

Introduction

The most striking indicator of the magnitude of international differentials in women's health is maternal mortality. Measures of pregnancy-related mortality show wider international disparities than any other statistics in public health (Mahler, 1987). The region of West Africa has the highest maternal mortality rate of all world regions.[1] A woman in West Africa has a 1 in 19 chance of dying of pregnancy-related causes during her reproductive life. This compares with 1 in 44 in Southeast Asia and 1 in 9,850 in Northern Europe (Herz and Measham, 1987). The levels of maternal mortality found in Southwest Nigeria as indicated by hospital studies suggest that pregnancy and childbirth carry with them dangers to life which are high in relation to many other developing countries and extreme in relation to the West.[2] The focus on maternal mortality by researchers and organisations such as the WHO has helped bring to light the dangers which women in developing countries face in pregnancy and childbirth. However, maternal mortality is just the tip of the iceberg. Women's reproductive health includes the direct and indirect physical and psychological effects of pregnancy, abortion, childbirth and sexual behaviour. Thus it encompasses such diverse conditions as vesico-vaginal fistula, anaemia, postnatal depression, cervical cancer, circumcision and contraceptive side-effects. These conditions can give rise to serious long-term complications which can severely affect quality of life; some may be fatal. Little is known about the magnitude of these problems in developing countries and the toll they take on women's lives.

The present study focuses on social and behavioural factors relating to one important type of reproductive morbidity, reproductive tract infections (RTIs). The severity of the biological and social consequences of RTIs have already been alluded to in Chapter One. In this chapter an investigation is made of the prevalence of RTIs among populations in Southwest Nigeria using published data and the results of a clinical study carried out in Ado-Ekiti.

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[1] According to WHO (1986) estimates, there are 700 maternal deaths per 100,000 live births in this region. This compares with ratios of 660 in East Africa, 420 in Southeast Asia, 220 in the Caribbean and just 30 in Western Europe.

[2] Hospital studies in Southwest Nigeria show a large range of maternal mortality ratio estimates. For the period 1962-1971 in Ibadan, Ojo and Savage (1974) estimated a maternal mortality ratio of 821. For the period 1972-1983 in Ilorin, Adetoro (1987) estimated it to be 450 and, for the period 1977-1988 in Ilesa, it was estimated to be 285 (Ogunniyi and Faleyemi, 1991).

RTIs can seriously impact on a woman's ability to conceive and deliver a healthy child. Two possible outcomes of RTI are infertility and pregnancy loss[3]. Given the broad aetiologies of infertility and pregnancy loss, in the absence of a detailed epidemiological study, population level data cannot provide direct evidence on the relationship between the observed level of these conditions and the prevalence of RTIs within the community. However, establishing levels of infertility and pregnancy loss in the study area does provide some clues as to the possible impact RTIs may be having on women's health. Moreover, establishing the levels of these conditions serves to provide an insight into the wider context in which health beliefs and health-seeking behaviours in relation to RTIs must be understood. The extent to which women perceive themselves to be at risk of not being able to conceive and deliver a healthy child may bear little relation to the 'actual' risk. However, it is this perceived risk which may well determine their health-seeking behaviours and their reaction to family planning initiatives. This important area is touched on here with reference to women's perceived experience of delayed conception, and is further developed in Chapter Five which examines in some detail women's health beliefs and health-seeking behaviours in relation to RTIs.

The prevalence of reproductive tract infections in Southwest Nigeria

There is an absence of accurate data on the incidence and prevalence of RTIs in Nigeria.[4] The data which do exist, largely on sexually transmitted diseases, are fragmentary, largely hospital-based, and have a strong urban bias. However, it appears that reproductive tract infections are a common problem for women in both urban and rural areas (Adekunle and Ladipo, 1992).

There are three possible sources of data on the incidence, or prevalence, of STDs: national statistics of reported cases, population surveys and clinical studies. National statistics for gonorrhoea provide minimal estimates because of underreporting. Reported figures (WHO, 1983) show an increase in the incidence of gonorrhoea in Nigeria from 61,138 reported cases in 1979 to 68,047 cases in 1981. The reported incidence for syphilis for 1979 was only 2,055 cases. Evidence from surveys in the Ekiti and Owo regions of Ondo State gives some indication of the extent of venereal disease. In the Ekiti survey (Orubuloye et al, 1990), 32 per cent of rural males and 13 per cent of rural females stated that they had been treated for venereal disease. For urban dwellers the comparative figures were 34 per cent and 30 per cent. In the Owo survey, carried out exclusively in an urban area, 37 per cent of men and 14 per cent of women stated they had been treated for a venereal disease (Bakare, 1990).

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[3] Here the term 'pregnancy loss' is used to refer to spontaneous abortion and stillbirth.

[4] Measures of disease occurrence either describe the situation at one specific point in time (prevalence) or what is happening during a period of time (incidence). Measures of prevalence describe what proportion of the population has the disease in question at one specific point in time whilst incidence describes the flow from the disease-free state to the diseased state.

Surveys of defined population groups using standard diagnostic and laboratory procedures provide more reliable estimates of the prevalence of RTIs, but for limited populations. In urban Southwest Nigeria, where there is a wide use of hospital or clinic-based antenatal services,[5] clients of these services represent a study group which, although very much a second-best alternative to one derived from a comprehensive community-based survey, is reasonably representative of women in the reproductive age group (see Chapter Three).

The prevalences of various reproductive tract infections among pregnant women in Ibadan, a large city in Southwest Nigeria, as reported by various workers are presented in Table 4.1.

Table 4.1
Reported prevalence of reproductive tract infections among pregnant women in Ibadan, various studies.

Infection	Study	Prevalence (%)
Gonorrhoea	Osoba and Onifade, (1973)	3.4
Trichomoniasis	Osoba, Onifade and Alausa, (1973)	21.0
Candidiasis	Onifade and Osoba, (1975)	33.0
Chlamydia	Darogar et al., (1982)	3.9
Syphilis	Sogbetun et al., (1977)	2.5

These rates can be put into some perspective by examining the range of estimates from studies of antenatal clinic clients in other regions of Africa (Table 4.2). Although caution must be exercised in comparing results from studies that may have used different methodologies and operational definitions, the limited evidence suggests that rates of infection with gonorrhoea in Southwest Nigeria are at the lower end of the spectrum found in sub-Saharan Africa and other less developed countries. The prevalence of trichomoniasis and candidiasis infections appears to be at a similar level to that found in other African countries. The evidence on the prevalence of chlamydia is scanty, but suggests that levels are in the lower part of the range found in other studies.

[5] The Ondo State Demographic and Health Survey (ODHS, 1987) showed that for 80 per cent of births the mother received antenatal care from a doctor, nurse or midwife; only 15 per cent of mothers did not receive a prenatal check-up. The more recent Nigeria Demographic and Health Survey (NDHS, 1990) showed that 86 per cent of births in the Southwest received antenatal care from a doctor, trained nurse or midwife.

Table 4.2
Prevalence of reproductive tract infections in pregnant women by country: Africa

Country	Year	Percent prevalence*				
		GC	CT	Syphilis	Trich.	Cand.
Cameroon	1980	14			15	39
Central African Republic	1980			10		
	1981	10				
Gambia	1982	7	7			
Ghana	1983	3				
Kenya	1981	0	6			
	1988		9			
	1988		20			
	1990		8			
Nigeria	1971-1975	3			21	33
Rwanda	1982			4		
Senegal	1983	19				
S.Africa	1983	10				
	1989		11			
Swaziland	1978	4			23	37
	1980			14		
Tanzania	1983	8				
Uganda	1983	18				
Zambia	1979	11				
	1984		15			
Zimbabwe	1976	2				
	1989		13			

who have postive reations to VDRL and RPR tests, Trich.=Trichomoniasis, Cand.=Candidiasis,

Source: Adapted from Wasserheit (1989) and Schulz, Schulte and Berman (1992).

Prevalence of RTIs among an antenatal clinic population in Ado-Ekiti

The prevalence of RTIs in a population of antenatal clinic clients was investigated to obtain some indication of the extent of infection among women within the study community of Ado-Ekiti. The prevalences of six diseases were investigated: syphilis, gonorrhoea, chlamydia, trichomoniasis, candidiasis and bacterial vaginosis. Facilities existed in Ado-Ekiti or were established by the investigator to identify these diseases using clinical and microbiological investigations. Free treatment was offered to women identified through the study as having one or more of these diseases. Details of the selection of the study population and survey procedures were discussed in Chapter Three.

Table 4.3 shows that the antenatal clinic population was younger than the population of 296 currently married women identified in the main survey (see Table 3.1). Women aged 17-24 in the antenatal clinic population had lower levels of education than in the survey population and proportionately more were polygamous. The proportion who had ever used contraception was considerably lower than in the survey group. In the older age groups the antenatal clinic population had somewhat higher levels of education and were less likely to be polygamous. Women aged 35-49 in the antenatal group were more likely to have ever used contraception than currently married

women aged 35-49 identified in the main survey. Across the ages 17-49 the mean age at first marriage was slightly higher for the antenatal group (22.1 years) than the survey group (20.8 years). The mean age at first sexual intercourse was also higher in the antenatal group (19.2 years) than in the survey group (18.5 years).

Table 4.3

Characteristics of antenatal clinic population and currently married women aged 17-49 from survey population, Ado-Ekiti.

Characteristics		Age in years**					
		17-24		25-34		35-49	
		Antenatal clinic	Survey	Antenatal clinic	Survey	Antenatal clinic	Survey
		28.3	14.8	57.5	46.2	14.1	39.5
Education *							
	None	0.0	0.0	3.2	9.5	33.3	30.0
	Primary	30.4	11.9	22.9	32.8	33.3	47.9
	Secondary	65.2	88.1	49.1	46.0	22.2	10.2
	Secondary+	4.3	0.0	24.5	11.7	11.1	11.1
	Missing	0.0	0.0	0.0	0.0	0.0	0.8
Type of marriage*							
	Monogamous	75.0	83.4	75.7	68.6	75.0	57.2
	Polygamous	25.0	16.6	24.3	31.4	25.0	42.8
Religion							
	Christian	85.8	76.1	87.8	84.0	82.4	82.0
	Non-Christian	14.2	23.9	12.2	16.0	17.6	18.0
Used contraception							
	Yes	4.2	26.2	16.7	31.4	35.3	30.8
	No	95.8	73.8	83.3	68.6	64.7	69.2
Ever had induced abortion							
	Yes	12.5	19.0	12.2	16.8	11.8	8.5
	No	87.5	81.0	87.8	82.5	88.2	91.5
	Missing	0.0	0.0	0.0	0.7	0.0	0.0
Number of women		32	42	65	137	16	117

* Significance $p<0.05$, ** Significance $p<0.01$

Source: Ado-Ekiti data tape 1992.

Table 4.4 shows that the prevalence of RTIs in the antenatal population was high, with over 58 per cent of women having some kind of reproductive tract infection. Candidiasis, an infection which is particularly common among pregnant women, was the most prevalent infection. Of note is the high level of infection with bacterial vaginosis, gonorrhoea or chlamydia, RTIs which have the potential to spread to the upper reproductive tract and which left untreated may cause pelvic inflammatory disease and ultimately infertility.

Table 4.4

Reproductive tract infections among 113 antenatal clinic clients, Ado-Ekiti.

	N	%
a) No. of women with a reproductive tract infection (RTI)		
Any reproductive tract infection	66	58
Lower RTI that has potential to spread to upper reproducitve tract*	25	22
STD that may act as co-factor for HIV transmission**	29	26
b) No. of cases of each infection		
Gonorrhoea	5	4
Chlamydia	9	8
Syphilis	2	2
Trichomoniasis	18	16
Bacterial vaginosis	13	11
Candidiasis	42	37
c) Distribution of infective agents		
Gonorrhoea	1	
Gonorrhoea and Chlamydia	1	
Gonorrhoea and Trichomoniasis and Candidiasis	2	
Gonorrhoea and Candidiasis and Bacterial Vaginosis	1	
Chlamydia	3	
Chlamydia and Trichomoniasis	2	
Chlamydia and Candidiasis	3	
Trichomoniasis	8	
Trichomoniasis and Candidiasis	6	
Candidiasis	25	
Candidiasis and Bacterial Vaginosis	5	
Bacterial vaginosis	7	
Syphilis	2	

*Bacterial vaginosis, gonorrhoea, chlamydia
**Trichomoniasis, syphilis, chlamydia, gonorrhoea

Source: Ado-Ekiti data tape 1992

On the basis of 43 surveys in Nigeria, the last of which was completed in 1989, it was estimated that the mean percentage of the 'general' sexually active urban population[6] with antibodies to HIV was low at 0.3 per cent (Anderson *et al.*, 1991). A recent estimate from the Nigerian Ministry of Health (Owen-Davies, 1992), based on nationwide screening, estimates that one per cent of Nigeria's population is HIV positive. Although caution must be exercised in the interpretation of HIV

[6] The 'general population' refers to surveys of non-high risk groups such as pregnant women, blood donors, certain occupational groups and the community in general (Anderson *et al.*, 1991: 582).

seroprevalence data (Way, 1992), this would suggest a relatively rapid rise in infection rates. A particular cause for concern in this context is the fact that one-quarter of the antenatal clients in the Ado-Ekiti sample were suffering from trichomoniasis, syphilis, chlamydia or gonorrhoea, sexually transmitted diseases which evidence suggests have the potential to act as co-factors for the transmission of HIV.[7]

Table 4.5 compares the characteristics of two groups of women infected and not infected with an STD.[8] Although caution is needed given that there were no infected women in the age group 35+ years the table suggests that the risk of infection increases slightly with age. It also suggests that the risk of infection reduces with increasing education. Polygamy appears to be associated with a higher risk of infection. This is consistent with situations in which taking a second wife is a response to STD-induced infertility of the husband or first wife, or where the sexual relations of at least one person extend beyond the polygamous unit. Never use of contraception, early age at first sexual intercourse and the husband being older all are associated with a higher risk of infection. Given the small sample size and lack of statistical significance it would be ill-advised too place too much emphasis on the relationships found between the various variables and frequency of infection. However, they are consistent with relationships identified in previous studies as factors influencing STD risk (Aral, 1992).

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[7] Wasserheit (1992) presents the following median risk estimates for the role of STDs in HIV transmission:

Syndrome	Median risk estimate
Genital ulcers	4.7
Syphilis	3.0
Genital herpes	3.3
Chlamydial infection	4.5
Gonorrhoea	4.7
Trichomoniasis	2.7
Anogenital warts	3.7

These median figures are derived from ranges based on a review of a number of studies which have sought to investigate RTIs as a risk factor for HIV transmission.

[8] This includes only those STDs for which women were tested: trichomoniasis, gonorrhoea, chlamydia and syphilis or a combination of these infections.

Table 4.5

Relationships between characteristics of antenatal clinic survey respondents and whether or not infected with one or more sexually transmitted diseases*, Ado-Ekiti.

Characteristic	Infected		Non-infected		Total	
	N	%	N	%	N	%
Age						
17-24	7	23	23	77	30	100
25-34	22	31	49	69	71	100
35+	0	0	12	100	12	100
Education						
None	1	25	3	75	4	100
Primary	10	30	23	70	33	100
Secondary	9	14	56	86	65	100
Secondary+	9	82	2	18	11	100
Type of marriage						
Monogamous	19	23	64	77	83	100
Polygamous	10	33	20	67	30	100
Ever use of contraception						
Yes	3	16	16	84	19	100
No	26	28	68	72	94	100
Ever had induced abortion						
Yes	3	23	10	77	13	100
No	26	26	74	74	100	100
Age at first sexual intercourse						
<15	3	100	0	0	3	100
15-19	18	29	45	71	63	100
20-24	5	13	33	87	38	100
25+	3	33	6	67	9	100
Age at first marriage						
15-19	6	33	12	67	18	100
20-24	14	22	49	78	63	100
25+	9	28	23	82	32	100
Husband's age						
<30	2	10	18	90	20	100
30-39	17	33	35	67	52	100
40+	10	24	31	76	41	100
Menstrual hygiene						
Uses rags	2	20	8	80	10	100
Does not use rags	27	26	76	74	103	100
Total	29	26	84	74	113	100

No relationships found to be significant at $p<0.05$ level

* The sexually transmitted diseases for which women were tested were syphilis, gonorrhoea, chlamydia and trichomoniasis.

Source: Ado-Ekiti data tape 1992

A separate analysis was carried out to compare the characteristics of women infected and not infected with bacterial vaginosis (which is not a sexually transmitted disease). There was found to be a significant difference in the menstrual hygiene of

infected and uninfected women. Thirty percent of the thirteen women infected with bacterial vaginosis used rags when they had their menses (as opposed to toilet tissue or sanitary towels). Only 5.9 per cent of women uninfected with bacterial vaginosis or an STD used rags. Poor menstrual hygiene has been associated with an increased risk of bacterial vaginosis in previous studies; for example, in Bangladesh (Wasserheit *et al.*, 1989).

The prevalence of gonorrhoea, syphilis and candidiasis found among antenatal clinic clients in Ado-Ekiti was similar to that found among populations of pregnant women in previous studies carried out in Ibadan.[9] The prevalence of chlamydia was somewhat higher and that of trichomoniasis somewhat lower. These levels of infection are significantly lower than those found in studies of antenatal clinic clients carried out in other countries in sub-Saharan Africa such as Kenya; where the prevalence of chlamydia among such women was 20 per cent, and Senegal, where the prevalence of gonorrhoea was 19 per cent. However, such comparisons should not serve to diminish the significance of RTIs as an important cause of morbidity in Ado-Ekiti. The levels of infection must be considered in terms of their potential effect not only on the woman's health but also on the health of her unborn child. Studies indicate that the transmission rates for RTIs are high; for example, 40-70 per cent in the case of syphilis, depending on whether the mother is suffering from early or late syphilis, and 47 per cent for gonorrhoea rising to 68 per cent when the mother is concomitantly infected with chlamydia (Schulz, Schulte and Berman, 1992). These infections can result in spontaneous abortion, stillbirth, prematurity, congenital infection and blindness or pneumonia in the newborn child. Women attending government or mission-run antenatal clinics in Ado-Ekiti receive no routine screening for RTIs. This study indicates that at least a quarter of women attending antenatal clinics in Ado-Ekiti are suffering from a STD, which in the majority of cases normally goes undetected. This would suggest that the danger to the mother and her child of an adverse outcome arising from a RTI is significant.

Infertility

One of the most devastating outcomes that may result from RTI is primary infertility or the onset of secondary infertility. In sub-Saharan Africa infertility carries a strong sense of personal failure and social stigma. A recurring feature in studies of fertility in Nigeria is the abhorrence with which the concept of childlessness is held. Caldwell (1987b: 350) reporting on an in-depth study carried out in Ibadan in 1973 noted that:

> The women frequently commented with regard to childlessness: 'It would be better never to have been born'. Others reported that the very thought was

[9] See Table 4.1.

> terrible and frightening... People accuse the childless of having been infected with venereal disease, having procured abortions or being more generally wayward and sinful.

That such associations are made was confirmed by Omideyi (1987:161) in her survey of Yoruba women in Oyo State. Omideyi wrote:

> As far as the community is concerned, the views put forward as reasons for barrenness may include promiscuity in teenage years and frequent abortions. Inability to carry a pregnancy to term in later years, is seen as a punishment for their sins.

Infertility is a condition which carries such strong negative associations in Southwest Nigeria that the fear of being afflicted is great. The work of Caldwell (1987) and Omideyi (1987) suggest that STDs, induced abortion and promiscuity are perceived to be causes of infertility. In this section an investigation is made of the causes of infertility in sub-Saharan Africa and estimates of the level of infertility prevailing in Southwest Nigeria are presented. In this study primary infertility is defined as the inability of a woman or a couple to have a live birth. Secondary infertility refers to the loss of the previously possessed ability to have a live birth, as demonstrated by an earlier live birth. The terms infertility and sterility are used interchangeably in this study. See Appendix 10.

Infertility in sub-Saharan Africa: causes and their prevalence

It is estimated that world-wide up to 5 per cent of all couples are infertile (WHO, 1975). However, the levels and patterns of infertility vary widely depending on the prevalence of 'core' infertility (biological variation in chromosomal, congenital and endocrinological abnormalities) and acquired infertility (due to infections and environmental and occupational factors). Most preventable infertility is a result of disease. A number of diseases may affect fecundity either through coital inability, conceptive failure or pregnancy loss as a result of fever, anaemia, intrauterine adhesions, tubal occlusion or inflammation of reproductive organs.

Parts of Africa have long been known to suffer from high levels of infertility. The early evidence for this was largely eye-witness accounts of European colonialists and travellers (Voas, 1981:778-780; Caldwell and Caldwell, 1983:5). Later the work of Romaniuk in the former Belgian Congo (1967, 1968a, 1968b) and of Retel-Laurentin in the Upper Volta and the Central African Republic (1973, 1974a, 1974b) led to the identification of a belt of high sterility in central Africa. Their work suggests that venereal disease, in particular gonorrhoea, has given rise to high levels of infertility in certain parts of sub-Saharan Africa. This conclusion has been endorsed by a number of other specialists in the field (Belsey, 1976; Caldwell and Caldwell, 1983; Frank, 1983b).

In more recent studies, backed by epidemiological evidence (Cates *et al.*, 1985), it has become clear that whilst tubal pathologies are the main cause of infertility in sub-

Saharan Africa, gonorrhoea is not the sole agent causing this pathology. The most comprehensive worldwide study of infertility to date was carried out by the WHO Special Programme of Research in Human Reproduction between 1979 and 1984 (Cates *et al.*, 1985). A total of 8,500 couples from 33 medical centres in 25 countries throughout the developed and developing world were enrolled and over 5,800 couples (69 per cent) completed the investigation.

The African region was represented by 4 centres, Ibadan, Nairobi, Yaounde and Lusaka, contributing a total of 842 couples. Africa was the only region where a majority of couples had secondary as opposed to primary infertility.[10] The self-reported frequency of a history of STD and pregnancy complications in women was low in all regions. However, African women had higher rates of both disorders. Africa was differentiated from other regions by the pattern of specific causes of female infertility. Over 85 per cent of African women had diagnoses which could be attributed to infection, a rate twice as high as elsewhere. Forty-nine per cent of infertile African women had bilateral tubal occlusion, a rate three times that of women in other regions.

As all four centres in the Africa region showed similar patient characteristics and patterns of infertility this study would suggest a preponderance of infection-related causes of infertility in Africa. Other studies also suggest that factors related to tubal pathology are the chief cause of female infertility in Africa. Hospital-based studies in Africa have shown 50 to 70 per cent of infertile women to have tubal obstruction (Belsey, 1976: 334). By contrast, in more developed countries, tubal occlusion accounts for no more than 20 per cent of cases of infertility (Sherris and Fox, 1983).

Information on chlamydial infections in Africa is still rather scant. However, indications are that in at least some regions chlamydia is an important cause of PID. A study in the Gambia (Mabey *et al.*, 1985) of 37 infertile women with bilateral fallopian occlusion found that they had significantly higher levels of circulating antibodies against *C. trachomatis* and *N. gonorrhoeae* than the matched pregnant controls. Such levels suggest that these women had suffered more frequent, more prolonged or more severe infections than the controls and the authors concluded that *C. trachomatis* and/or *N. gonorrhoeae* was likely to have caused the tubal pathology in a high proportion of cases. A study in Central Africa (Frost, 1987) also indicates that chlamydial infections play a major part in salpingitis and infertility in this area.

Tubal occlusion arising from PID is an important cause of infertility in sub-Saharan Africa. However, in addition to RTIs there are a number of other diseases commonly found in Africa which may affect the fallopian tubes and lead to infertility. These include genital tuberculosis and schistosomiasis.

Tuberculosis of the genitals is generally considered to be secondary to other foci, usually the lungs. The risk of developing genital tuberculosis is increased for women and

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[10] Fifty-two per cent of couples had secondary sterility as compared with 29 per cent in developed countries, 23 per cent in Asia, 40 per cent in Latin America and 16 per cent in the East Mediterranean.

if first infection occurs during adolescence (McFalls and McFalls, 1984). Little is known about the prevalence of genital tuberculosis or the proportion of women with pulmonary tuberculosis who develop it. In African studies genital tuberculosis was found in 2-6 per cent of infertile women (Belsey, 1976). The condition is generally asymptomatic. The initial site of genital tuberculosis is the fallopian tubes, with secondary endometrial involvement occurring in approximately 50 per cent of cases (Belsey, 1976). The resulting scarring and adhesions can block the fallopian tubes leading to infertility. In a study from Ibadan, 69 per cent of 82 women with genital tuberculosis complained of infertility (Ojo, 1971 cited in Belsey, 1976: 331).

Schistosomiasis is the third most prevalent disease worldwide after tuberculosis and malaria. It is estimated that 200 million people are infected with this parasitic disease. A number of individual case reports have described lesions attributable to schistosomiasis in association with acute and chronic salpingitis and tubular obstruction (Belsey, 1976). The epidemiological significance of schistosomiasis in infertility is unknown. However, a study in Ibadan, Nigeria (Edington *et al.*, 1975) suggests that in West Africa, at least, schistosomiasis is an uncommon cause of male or female infertility.

Measuring levels of infertility

There are a number of measurement problems associated with the estimation of sterility from demographic surveys. These may arise from the omission of both births and child deaths, and from inaccuracies in the reporting of last births.[11] It is thought that childless women are more likely to give a 'don't know' answer to questions on the number of children ever born and to fail to distinguish between children they actually bore and those they raised. There is also some evidence of the loss to surveys of childless women with increasing age (Caldwell and Caldwell, 1983). This may be because they intentionally avoid enumeration or because they are more likely to lose support and hence experience higher mortality. If such is the case, primary sterility is more likely to be understated than secondary sterility.

There are a number of ways of tackling the measurement of sterility in a population. In the past estimates were restricted to those based on complete birth histories of women aged 50 (Trussell and Wilson, 1985). A number of estimators based on the distribution of children ever born to age and/or marriage cohorts of women have been employed in studies of sterility in sub-Saharan Africa (Tabutin, 1982; Caldwell and Caldwell, 1983; Lesthaeghe, 1984; Mammo and Morgan, 1986). In these studies measures of primary infertility are based on childlessness. Secondary infertility is estimated on the basis of the number of children women have borne by a certain age and/or marriage duration. Other methods produce estimates based on the length of the open birth interval (Westoff and Pebley, 1981; Vaessen, 1984; Arnold and Blanc, 1990).

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[11] A common error observed in fertility surveys is the 'Potter effect' whereby women tend to report a birth as occurring closer to the survey date than it actually did (Potter, 1977).

A measure of infertility based on fertility subsequent to a given age which can be calculated from incomplete birth histories has also been developed (Larsen and Menken, 1989).

In the following analysis of data on Nigeria and Southwest Nigeria from the Nigeria Fertility Survey (1980-1981) (NFS) and the Nigeria Demographic and Health Survey (1990) (NDHS), estimates of infertility based on parity distributions (after Caldwell and Caldwell, 1983), open-birth intervals (after Arnold and Blanc, 1990) and subsequent infertility (after Larsen and Menken, 1989) are presented. These measures have been selected because they offer the opportunity to compare estimates made in the present study with others derived from the analysis of World Fertility Survey and Demographic and Health Survey data for other countries. Unfortunately the lack of a complete marriage history in the NDHS precludes the use of the subsequently infertile method for the analysis of this data set. For a complete description of the methods used and the shortcomings associated with each method see Appendix 11.

Prevalence of infertility in sub-Saharan Africa

Levels of infertility in sub-Saharan Africa vary markedly and show a range in the prevalence of childlessness from a high of 40 per cent to a low below 3 per cent (Frank, 1983a).[12] The picture presented by Frank (1983a) suggests gradients of infertility with high levels in Central Africa being circumscribed by decreasing levels towards the northwest and eastern zones of sub-Saharan Africa.

Findings from the Demographic and Health Surveys (DHS) have been interpreted as suggesting that infertility is not as high as was previously thought. The 10 countries from sub-Saharan Africa included in the DHS showed levels of infertility comparable to, if not lower than, those in other developing countries. Arnold and Blanc (1990) argue that this may either indicate overestimation of infertility in previous studies or be evidence of a substantial reduction in infertility in recent years. The evidence for this is mixed (Mammo and Morgan, 1986; Tabutin, 1982; Larsen, 1989). However, these results do tend to give the lie to the idea of sub-Saharan Africa as a whole as suffering from acute levels of infertility.

Estimates of levels of infertility in Nigeria

An analysis of the 1981-82 Nigeria Fertility Survey carried out by Gray and Tesfaghiorghis (1988) applies models developed for the estimation of childlessness and subfertility[13] from distributions of children ever born to a cohort of women. The percentage childless ranged from 4.86 per cent in the 35-39 age group through 6.69 per

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12 Three per cent was taken by Frank as the standard by which levels of fertility were judged, and reflects the baseline natural level of infertility found in human populations.

13 In this study the term 'subfertile' is used to describe women of parity one who do not bear children after the first child.

cent for those aged 40-44 to 7.88 per cent for women aged 45-49. The corresponding figures for the percentage subfertile were 5.11 per cent, 5.75 per cent and 3.33 per cent respectively. The low level of subfertility in the 45-49 age group was considered by Gray and Tesfaghiorghis (1988) to probably be due to data errors.

The evidence on the level of infertility in Southwest Nigeria is fragmentary. Olusanya (1974: 43) presents evidence to suggest that the Western State of Nigeria[14] has fertility rates which are rather low relative to other parts of Nigeria. From a survey of 618 women in rural communities, estimates based on the proportions of ever married women having specified numbers of children by marriage duration were made. Fifteen per cent of women married for 11-15 years had either never borne a child or had borne only one; 40 per cent had borne no more than two children.

Caldwell and Caldwell (1983:15) presented an analysis based on three surveys carried out among the Yoruba of Southwest Nigeria in 1973 covering a total of 8,543 female respondents. The study revealed that only 2 per cent of all women over 40 years of age had voluntarily restricted family size to under five children. Women were assumed to be suffering from primary infertility if they were childless at age 30 and from secondary infertility if they had borne only 1-2 children by age 30 or 1-3 children by 40 years of age. Primary sterility was found to be unremarkable, averaging only 3-4 per cent. However, based on the definition used, secondary sterility was a major problem. Some degree of sterility was estimated to have prevented over two-fifths of the women in Ibadan and almost one-third of the women from Western and Lagos States from having as many births as they wished.

It would appear that levels of primary infertility in Southwest Nigeria are relatively low. However, there are indications that the prevalence of secondary infertility may be considerably higher.

Infertility in Nigeria

Data quality

Information on fertility was collected in the NFS and the NDHS using a comprehensive birth history supplemented by additional questions. Each woman was asked the number of sons and daughters living with her, the number living elsewhere, and the number who had died. She was then asked for a history of all her births, including the month and year of each, the name, the sex, the age at death (if deceased), or, current age (if alive) of each child, and whether he or she was living with the mother.

It is known that data based on birth histories are subject to various types of error which may affect derived estimates of infertility. These include errors arising from the incorrect reporting of births, the omission of births and misreporting of the ages at

[14] This formed what is now Ogun, Oyo, Ondo and Osho States.

which they occurred by respondents. These errors potentially may lead to distortions in the estimation of infertility levels.[15] Morah's (1985) analysis of NFS data quality and an assessment of the NDHS indicate that there is misreporting, displacement and omission of births in both surveys.[16] Although the degree of data error does not appear remarkable relative to levels found in corresponding surveys in other sub-Saharan African countries, some caution must be exercised in the interpretation of estimates of infertility based on the NFS and NDHS data sets.

Estimates of infertility based on parity distributions

Table 4.6 presents data from the NFS and the NDHS to show the distributions of women by parity for female age groups 15-29, 30-39 and 40 plus for Nigeria and the southwest region of Nigeria. The table shows that primary infertility as measured by the percentage of childless women in the 30-39 and 40+ age groups is consistently lower when estimates are derived from the NDHS data than when they derived from the NFS data. The percentage childless in the 40+ group in the southwest region appears extremely low and may reflect a degree of misreporting by older women or perhaps an undersampling of childless women. The small sample size is also a matter of concern here. Comparing the southwest region to Nigeria as a whole for the 30-39 years age group there is a notable differential, with the national level being consistently approximately twice the regional level. For the 40+ years age group this differential is considerably larger. Indeed the level of primary infertility in the southwest region appears low in comparison to Frank's standard baseline of 3 per cent.

Levels of secondary infertility as measured by the percentage of women aged 30-39 who have one child but have not gone on to have two, and the percentage of women aged 40+ who have only 1-2 children, are twice those of primary infertility. This is consistent with findings from other studies in sub-Saharan Africa (Farley and Belsey, 1988). When a less conservative estimate of secondary infertility is considered, that is the percentage of women aged 30-39 who have 1-2 children and the percentage of women aged 40+ who have 1-3 children, the levels are approximately three times those of primary infertility. The magnitude of the differential seen here may be a reflection of decisions on the part of some respondents to voluntarily curtail the size of their families or, in the case of the 30-39 years age group, their families may not yet be complete. However, evidence from the NFS and the NDHS suggest this is unlikely. Although caution must be exercised when comparing stated fertility preferences to actual fertility behaviour, it appears that few women in Nigeria wish to curtail the size of their families to such an extent. In the NFS only 2 per cent of currently married women with two living children said they wanted no more children. Of those with three children, 4.1 per

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[15] The misreporting of respondents' ages and displacement of births to a time nearer the survey will tend to lead to an underestimation of sterility whilst the omission of births will lead to an overestimation.

[16] For a detailed description of the analysis of data quality carried out on the NDHS see Appendix 12.

cent said they wanted no more. It is interesting to note that whilst still forming small proportions, the equivalent measures in the NDHS were higher, at 5 per cent and 8.6 per cent respectively. In regard to the timing of births, the NDHS shows that 89 per cent of women who have a third birth have had it by the time they reach age 30.

Table 4.6
Parity distributions by age of women and sterility indices, Nigeria and Southwest Nigeria, 1981 and 1990.

a) Parity distribution (% distribution in each age group)

Parity	Age group											
	15-29				30-39				40+			
	NFS sw	NFS	NDHSs	NDHS	NFSsw	NFS	NDHSs	NDHS	NFSsw	NFS	NDHSs	NDHS
0.0	45.4	39.4	53.6	39.6	2.6	5.9	2.2	4.2	2.3	7.7	0.8	4.3
1.0	16.4	16.6	17.4	18.3	5.7	6.2	3.0	4.1	3.9	5.7	2.5	3.9
2.0	14.0	14.5	12.4	15.0	10.6	8.9	6.0	8.4	5.6	7.1	2.9	4.0
3.0	11.3	11.5	7.5	10.9	15.3	12.7	10.5	10.4	11.3	9.1	7.6	6.9
4.0	7.4	8.6	4.9	7.9	18.6	15.8	21.3	15.5	15.1	11.5	7.7	7.0
5+	5.5	9.3	4.2	8.2	47.2	50.5	57.0	57.4	61.7	58.8	78.4	73.9
Total	100.0	99.9	100.0	99.9	100.0	100.0	100.0	100.0	99.9	99.9	99.9	100.0
Number	1100	5577	1174	4957	537	2657	533	2363	379	1495	352	1460

b) Sterility indices

Sterility Index	Age group							
	30-39				40+			
	NFS sw	NFS	NDHSs	NDHS	NFSsw	NFS	NDHSs	NDHS
Primary sterility	2.6	5.9	2.2	4.2	2.3	7.7	0.8	4.3
Secondary sterility1	5.7	6.2	3.0	4.1	9.5	12.8	5.4	7.9
Secondary sterility2	16.3	15.1	9.0	12.5	20.8	21.9	13.0	14.8

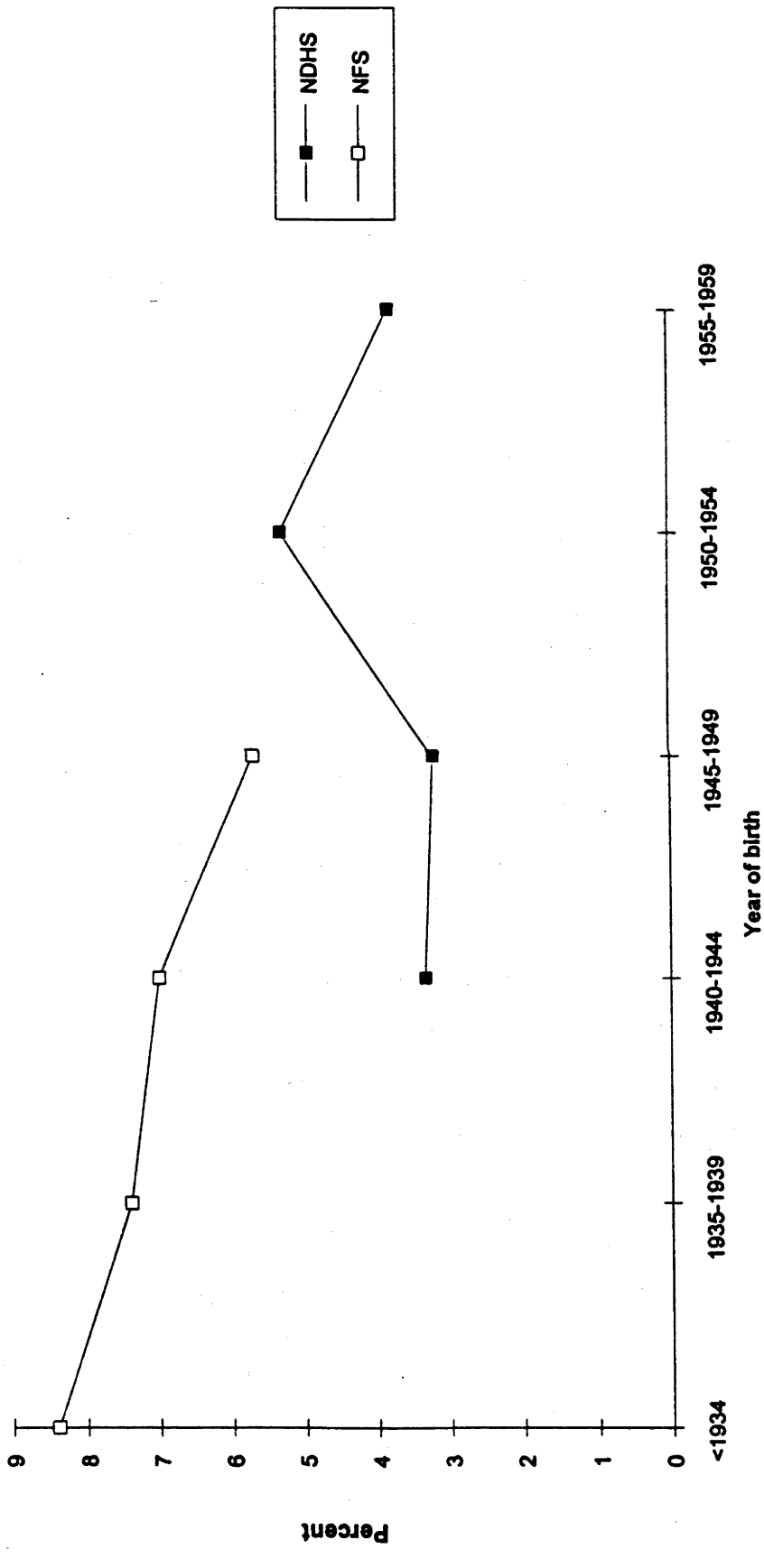
Primary sterility = women with no live births
Secondary sterility1 = women aged 30-39 who have had one child only
women aged 40+ who have had 1-2 children onl
Secondary sterility2 women aged 30-39 who have had 1-2 children only
women aged 40+ who have had 1-3 children onl

Key:
NFSsw = Nigeria Fertility Survey southwest region, 1981.
NFS = Nigeria Fertility Survey all Nigeria, 1981.
NDHSsw = Nigeria Demographic and Health Survey southwest region, 1990.
NDHS = Nigeria Demographic and Health Survey all Nigeria, 1990.

Source:
Nigeria Fertility Survey 1981 data tape
Nigeria Demographic and Health Survey 1990 data tape

The level of secondary infertility is, with the exception of the level of secondary infertility for the 30-39 year age group measured in the NFS, consistently lower in the southwest region than nationally. For all measures estimates derived from the NDHS are lower than those from the NFS. This could be interpreted as suggesting a reduction in the levels of infertility both nationally and regionally during the period between the two surveys. Figure 5 shows for the whole of Nigeria the percentage of women aged 30+ who are childless by year of birth. Although there are few data points it is notable that with the exception of the levels of childlessness recorded for women born between 1940 and 1949 in the NDHS, the data show a relatively smooth decline. The very low levels of childlessness shown for older women in the NDHS may be the result of misreporting or of a possible undersampling of childless women.

Figure 5


Percentage of women 30+ childless by year of birth, Nigeria
NDHS
NFS
Percent
0
1
2
3
4
5
6
7
8
9
<1934
1935-1939
1940-1944
1945-1949
1950-1954
1955-1959
Year of birth

Estimates of infertility based on open-birth intervals

Table 4.7 presents, by age, the proportions of currently married women whose dates of first marriage were five or more years ago who had not had a live birth. Estimates presented include those based on data from the Ghana, Kenya and Mali Demographic and Health Surveys (Arnold and Blanc, 1990: 28). Given the small sample size, estimates for the southwest region are restricted to a composite measure for the age group 25-49. Once again it is apparent that measures for the southwest region are lower than for Nigeria as a whole and that measures from the NDHS are lower than those from the NFS. If a comparison is made of national-level Demographic and Health Survey data from Nigeria, Ghana, Kenya and Mali it appears that estimated levels of infertility in Nigeria and Mali are quite comparable and are approximately twice those found in Ghana and Kenya. For the 25-49 age group the level of infertility in the southwest region of Nigeria is slightly below that of Kenya and Ghana.

Table 4.7
Estimates of primary infertility based on length of open-birth interval, Nigeria, Ghana, Kenya and Mali, various data sources.

Measure of primary infertility - proportion of currently married women, whose date of first marriage was 5+ years ago with no live births

Data source	Age group			
	35-39	40-44	45-49	25-49
NFS southwest region				1.7
NFS Nigeria	4.9	7.1	6.2	5.1
NDHS southwest region				1.1
NDHS Nigeria	3.8	4.2	3.5	3.7
Ghana DHS	0.8	0.6	1.8	1.6
Kenya DHS	1.2	1.9	2.6	1.7
Mali DHS	2.4	3.8	3.0	3.5

Source: Nigeria Fertility Survey 1981 data tape
Nigeria Demographic and Health Survey 1990 data tape
Arnold and Blanc (1990)

Shown in Table 4.8 are estimates of secondary infertility, calculated as the percentage of currently married women aged 25-49, whose first child was born five or more years ago, who have not gone on to have a second child. This measure must be considered a minimum level indicator. In countries with high levels of fertility and almost universally high fertility preferences such as are found in sub-Saharan Africa, secondary infertility is measurable, and socially significant, at much higher parities.

Once again the estimate is lower for the southwest region than for Nigeria as a whole and for NDHS-derived estimates than those from the NFS. Comparing

internationally, Kenya has the lowest level with the southwest region of Nigeria showing a level similar to that in Ghana. Nigeria as a whole has an estimated level of secondary infertility similar to that of Mali.

Table 4.8
Estimates of secondary infertility based on length of open-birth interval, Nigeria, Ghana, Kenya and Mali, various data sources.

Measure of secondary infertility - currently married women age 25-49, first child born 5 or more years ago, percentage who have not had a second child

Data source	Age group 25-49
NFS southwest region	2.7
NFS Nigeria	4.8
NDHS southwest region	2.3
NDHS Nigeria	3.1
Ghana DHS	2.5
Kenya DHS	1.7
Mali DHS	3.7

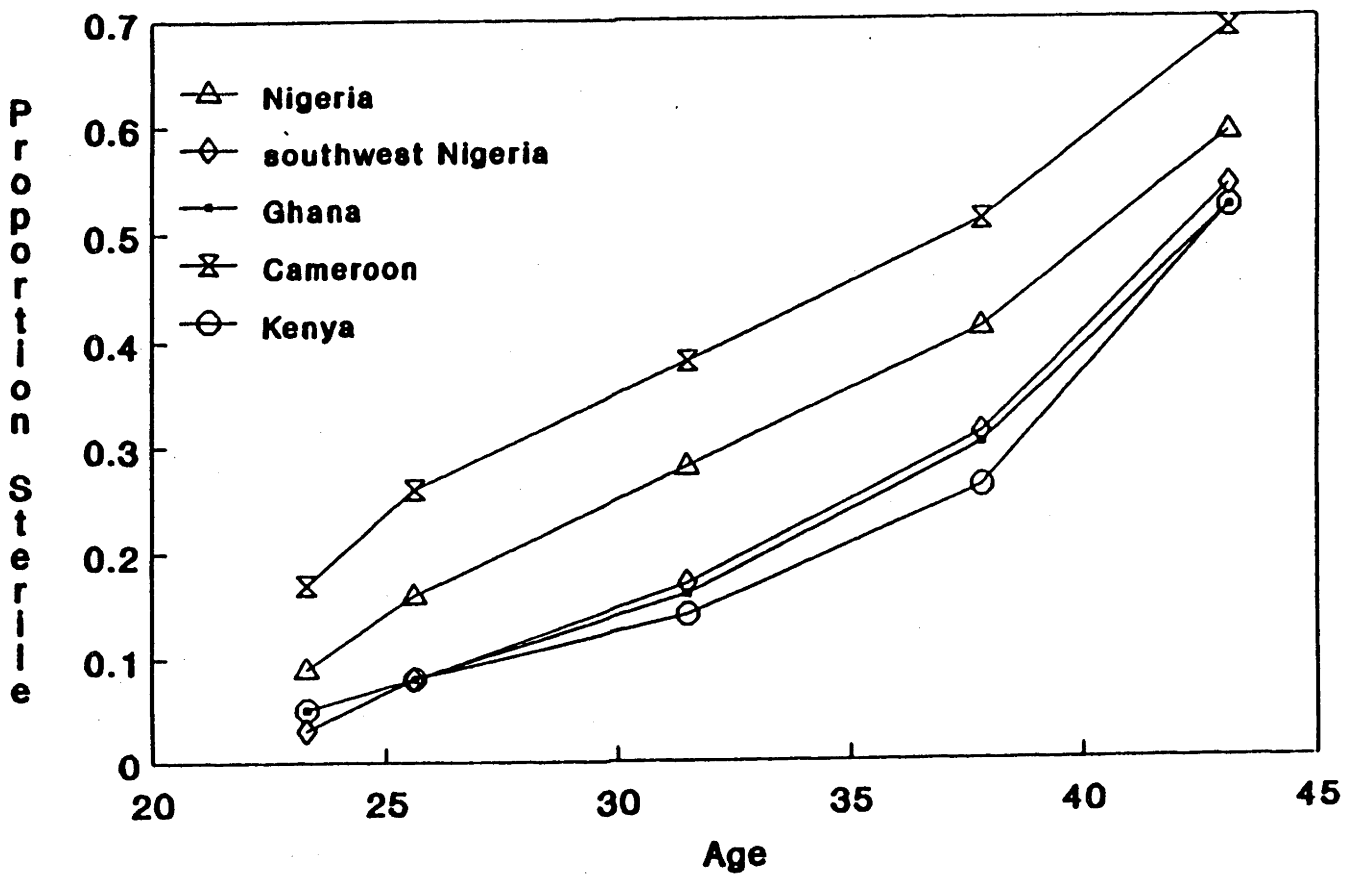
Source: Nigeria Fertility Survey 1981 data tape
Nigeria Demographic and Health Survey 1990 data tape
Arnold and Blanc (1990)

Estimates of infertility based on the subsequently infertile method

Table 4.9 presents proportions subsequently infertile as estimated for Nigeria, Southwest Nigeria, Cameroon, Ghana and Kenya. The analysis is restricted to women aged 20-44. Women aged 15-19 are excluded because of possible complications arising from adolescent subfecundity. For women aged 45 and above the ability to have a live birth decreases sharply with age and biological ageing is the prime cause of sterility. The results for all women are plotted in Figure 6. The age structure of sterility is similar in the five series but the levels vary substantially. Cameroon exhibits the highest levels, Nigeria is intermediate and Southwest Nigeria, Ghana and Kenya have the lowest levels. The prevalence of sterility is very similar at all ages for Southwest Nigeria and Ghana. This finding is consistent with those from estimates using the previous methods described.

Figure 6

Proportion of Women Sterile by Age
(Nigeria, Ghana, Cameroon and Kenya)



Source: Nigeria Fertility Survey data tape (1981) Larsen & Menken (1988)

Table 4.9

The proportion subsequently infertile, SI (5) (all women and women who had never used contraception) for Nigeria and selected sub-Saharan African countries

Calculation age group	All women	Never used	All women	Never used	All women	Never used
	Nigeria		Southwest Nigeria		Kenya	
20-24	0.09	0.09	0.03	0.03	0.05	0.07
25-29	0.16	0.18	0.08	0.09	0.08	0.1
30-34	0.28	0.29	0.17	0.15	0.14	0.16
35-39	0.41	0.43	0.31	0.31	0.26	0.28
40-44	0.59	0.59	0.54	0.54	0.52	0.55
Sample size	5457	4676	1034	810	4037	2731
	Ghana		Cameroon			
20-24	0.05	0.06	0.17	0.18		
25-29	0.08	0.1	0.26	0.27		
30-34	0.16	0.18	0.38	0.39		
35-39	0.3	0.33	0.51	0.52		
40-44	0.52	0.55	0.69	0.69		
Sample size	2869	1769	4468	3212		

Source: Nigeria Fertility Survey 1981 data tape
Larsen and Menken (1989).

It would appear that infertility is not a major problem in Southwest Nigeria and that this region has relatively low levels of infertility compared to Nigeria as a whole. Several ideas could be postulated to explain why this may be so. It could be that the prevalence of diseases that can result in infertility, such as RTIs, is lower in Southwest Nigeria than in the country as a whole. It may be that women are at less risk of infection through unsafe childbirth practices or through induced abortion. Another possible explanation is that women in the southwest region, although equally exposed to the risk of sterilising infections, are better able, perhaps through greater access to health care,[17] to treat the disease early and so prevent it from causing infertility. There is some evidence to suggest that there has been a decline in levels of infertility in Nigeria over recent decades which may, in part, reflect a nationwide improvement in women's health, perhaps through increased access to health services. The cost of health care in Nigeria has been increasing, as marked by the end of free government health services in 1984

[17] As noted in Chapter Two, Southwest Nigeria has a concentration of health care facilities not found in other regions of Nigeria.

and the rise in prices associated with the devaluation of the Naira. Whether this and the pressures of a declining economy will have a negative affect on women's health remains to be seen.

It should be reiterated that infertility levels obtaining in a population are a result of the complex web of demographic, socioeconomic, cultural and biomedical factors which determine exposure to RTIs and other causal agents and the outcome of such exposures, and are not amenable to simplistic cause and effect interpretations. However, it would appear that unlike some other areas of sub-Saharan Africa the complications of RTIs are not resulting in high levels of infertility in the southwest region of Nigeria.

Pregnancy loss

Spontaneous pregnancy loss, although less likely than induced abortion to be followed by serious health complications for the mother, can lead to severe emotional distress and may stop women from achieving their desired family size. A number of RTIs including syphilis, genital herpes, chlamydia and gonorrhoea can lead to foetal death and pregnancy loss. RTIs may also result in low birthweight or prematurity. An examination of reported pregnancy loss in Ado-Ekiti gives some indication as to the extent of the problem as perceived by women and helps elucidate the context in which health beliefs and health seeking behaviours relating to RTIs must be understood.

Pregnancy loss and its causes

Pregnancy loss may be defined as the inability to carry a conceptus to a live birth (Belsey, 1976). The term encompasses both spontaneous abortion and stillbirth.[18] Pregnancy loss is common. The large majority of foetal deaths occur in early gestation, with very high risks before the fourth week.[19] These early losses may often go unnoticed by the mother.

Based on prospective studies it is estimated that after the sixth gestational week, two weeks after a missed period, the rate of spontaneous pregnancy loss is around 150 per 1,000 pregnancies (Casterline, 1989). Stillbirths constitute a small proportion of these losses. Santow (1978) cites six studies providing stillbirth rates ranging from 13 to 35 per 1,000 pregnancies.

Intrauterine mortality rates vary substantially with the age of the mother. The rates are lowest for women in their early twenties, rise slowly to the mid thirties and thereafter increase sharply. Women aged 40-44 experience foetal mortality at about double the average rate. In the early months of gestation the majority of foetal deaths

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[18] A spontaneous abortion is a foetal death that takes place before the foetus is viable. This is usually taken to be before the 28th week of gestation. After that date the foetus becomes viable and a foetal death is known as a stillbirth.

[19] In a study by Wilcox (1988) it was found that two-thirds of total pregnancy losses took place before the pregnancy had been clinically recognised.

are caused by genetic defects, with approximately 50-60 per cent of spontaneous abortions in the first 4-20 weeks being due to chromosomal abnormalities (Speroff *et al.* 1989). The incidence of these defects rises with maternal age. However, these early losses operate relatively independently from social, economic and, to a large extent, health factors. In the second and third trimesters the foetus becomes more susceptible to infection and the general health of the mother. Such factors as maternal illness, uterine infection, maternal smoking and alcohol intake may increase the risk of foetal mortality. A number of medical conditions are associated with an increased risk of intrauterine death, including syphilis, malaria and toxoplasmosis. The condition of cervical incompetence which arises from damage to the cervical canal due to laceration, infection and scarring from previous injury is suspected of being a cause of repeated second trimester spontaneous abortion.

The characteristic outcome of pregnancy in a woman with syphilis will be a spontaneous abortion, a macerated foetus, stillbirth, a congenitally infected infant who has a decreased chance of survival or a healthy infant who has passively acquired syphilis-related antibodies (WHO, 1975). Because as the infection becomes chronic it becomes increasingly likely that a live, unaffected child will be born, syphilis is a self limiting factor in pregnancy loss. The rate of pregnancy loss is dependent on the stage of syphilis in the mother and the stage of gestation when the foetus is infected. On the individual level syphilis is an important cause of foetal loss but there is some controversy as to the demographic impact of the disease in a population (Retel-Laurentin, 1974; Belsey, 1976; Gray, 1979).

The evidence for an association between malaria and foetal loss is indirect, and based largely on clinical observation (Gray, 1979); however, it is persuasive particularly for those infections arising from *Plasmodium falciparum*. The fevers and anaemia associated with the disease may cause spontaneous abortion and stillbirth. There have been no studies to directly link the prevalence of malaria with the prevalence of foetal loss in a population. However, even if there is only a small increase in the relative risk of foetal loss in a woman with malaria, because of the high prevalence of the disease in some populations, the attributable risk of foetal loss may have a substantial demographic impact (Gray, 1979).

Infection with the protozoan *Toxoplasma gondii* is associated with congenital infection of the foetus during asymptomatic or mild primary infection of the mother. The generally held view is that *T. gondii* represents a one-time risk from a primary infection of a pregnant woman. The result of such an infection is either a stillbirth, a congenitally infected, often premature infant, or a normal infant (Belsey, 1976). Data from Zaire suggest it plays an important role in pregnancy wastage, causing around 10 per cent of stillbirths (Wery-Paskoff et al, 1970 cited in Belsey, 1976:332).

Pregnancy loss in Ado-Ekiti

In the Ado-Ekiti survey respondents were asked whether they had ever had a pregnancy that was not carried to term (that they had not intentionally sought to loose). Sixty-seven women, that is 15.8 per cent of all sexually experienced women, reported having had at least one spontaneous pregnancy loss. Pregnancy losses constituted 7.25 per cent of reported pregnancies (excluding currently pregnant women). This figure appears very low given the baseline of 15 per cent cited above.

There are a number of reasons why spontaneous pregnancy losses might be underreported. The retrospective coverage of pregnancy losses is problematic. Spontaneous losses are liable to omission because they may go unnoticed or are not recalled. Even where recognised and recalled the respondent may be unwilling to report a pregnancy loss, and compared to a live birth, such an event is easily concealed. An upward bias may arise from induced abortions being reported as spontaneous losses or from delayed menstrual periods unrelated to a pregnancy being perceived as indicative of foetal loss. Further, where the incidence of induced abortion is high, spontaneous and induced loss are competing risks (Potter *et al.*, 1975). Early miscarriages can avert an intended abortion, while abortions can forestall spontaneous losses that otherwise would have occurred.

A number of women in Ado-Ekiti reported having experienced more than one spontaneous pregnancy loss. Eighteen women reported two losses, eight women reported three and one woman reported having lost four pregnancies. The number of months at which the pregnancy was lost[20] ranged from one to eight, the mean number of months being 3.2.

A comparison was made between the characteristics of those women who reported pregnancy losses and those who did not. Table 4.10 shows by age the percentages of the 344 respondents with at least one pregnancy (see Tabel 3.1) who reported or did not report ever having had a spontaneous abortion. It shows that spontaneous abortion is related to age; the percentage of women reporting a spontaneous loss increases with rising age. Women with lower levels of education in all three age groups experienced higher levels of spontaneous abortion than those women who had received secondary or higher education. In the younger age groups there was a higher level of spontaneous abortion among women in polygamous marriages rather than monogamous ones. Among older women this differential was narrowed and the pattern reversed. Women aged 25 and over who reported having had a spontaneous abortion also were more likely to report having had a child that was born alive and subsequently died. These differentials may reflect socio-economic differences in life style and access to health care which impacts upon the risk of incurring a spontaneous pregnancy loss.

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[20] This refers to the last episode of pregnancy loss which the respondent experienced.

Table 4.10

Percentages of women who reported and did not report ever having had a spontaneous abortion by age and by other characteristics. Respondents with at least one pregnancy only. Ado-Ekiti 1991-1992.

Characteristics	Age in years**									Total
	17-24			25-34			35-49			
	No spontaneous abortion	Spontaneous abortion	N	No spontaneous abortion	Spontaneous abortion	N	No spontaneous abortion	Spontaneous abortion	N	N
	90	10	67	83	17	149	73	27	129	345
Education *										
None	0	0	0	75	25	12	74	26	42	54
Primary	67	33	6	82	18	49	67	33	60	115
Secondary	91	9	57	84	16	70	87	13	13	140
Secondary+	100	0	4	89	11	18	87	13	13	35
Missing	0	0	0	0	0	0	0	100	1	1
Type of marriage*										
Monogamous	91	9	58	86	14	113	72	28	98	269
Polygamous	54	46	7	75	25	36	77	23	31	76
Children ever born										
0	89	11	27	89	11	9	0	0	0	36
1	96	4	25	88	12	24	100	0	1	50
2 to 3	85	15	15	86	14	63	75	25	16	94
4 to 5	0	0	0	73	27	42	77	23	39	81
6+	0	0	0	75	25	11	70	30	73	84
Child death*										
Not applicable	89	11	27	89	11	9	0	0	0	36
Yes	100	0	2	58	42	37	64	36	67	106
No	88	12	38	87	13	103	82	18	62	203
Number of women	60	7	67	124	25	149	94	34	129	345

* Significance $p<0.05$

** Significance $p<0.01$

Source: Ado-Ekiti data tape 1992

Perceived delayed conception, Ado-Ekiti survey

Although measurable levels of infertility in Southwest Nigeria appear low and reported levels of pregnancy loss are not remarkable, in terms of reproductive behaviour such as contraceptive use, an important factor is the degree to which women perceive that their ability to conceive is impaired. One possible indication of this is the number of women who report having had a delay in conception.

In the Ado-Ekiti survey, women were asked how long they would expect it to take a woman to become pregnant after she started trying to have a baby. Five per cent of women said that the timing of conception was the work of God, one per cent said that it depended on the nature of the woman and 8.8 per cent of women gave a "don't know" response. Of the 379 women who gave a numerical answer, all said that they would expect a woman to become pregnant a year or less after she had started trying to have a baby; 96 per cent said it would take less than six months and 14.5 per cent said they would expect her to conceive 'immediately'.

Respondents were then asked whether they had ever tried to get pregnant and taken a longer time than they expected to conceive. Of women who had ever had sexual intercourse 17 per cent said they had experienced such a problem. Of these women 24 per cent reported having experienced this difficulty more than once. Asked about the last time they had experienced this problem, of the 66 women able to estimate, 36.6 per cent reported having waited over two years to conceive.

When asked why they thought they had not conceived over 44 per cent of women who stated that they had experienced a delay in conception attributed it to locally recognised disease categories. Another 18 per cent attributed it to the powers of witches or God; that is, to forces beyond their control.

Thus it would appear that although levels of infertility and pregnancy loss are not remarkable in this community, a sizeable proportion of women feel that their reproductive function is not entirely under their control. That delayed conception, pregnancy loss and infertility are major concerns among women in this community is reflected in their health beliefs and categorisation of diseases, which are discussed in some detail in Chapter Five.

Conclusions

It would appear from the evidence presented in this chapter that relative to Nigeria as a whole and to a number of other countries in sub-Saharan Africa, the southwest region of Nigeria does not exhibit particularly high rates of reproductive morbidity as measured by RTI, infertility and pregnancy loss. However, this is not to say that female reproductive health is not a matter of serious concern. The levels of maternal mortality estimated from hospital studies indicate that pregnancy and childbearing carry a considerable risk to women's survival and to their long-term quality of life. Although infertility levels are measurably low and show some indication of having declined in the

past decade, subfecundity and worries about their ability to conceive and carry a pregnancy to term remain of great concern to women. Although the prevalence of RTIs among antenatal patients is at the lower end of the spectrum to be found in other similar studies in sub-Saharan Africa, this is not to deny the important potential dangers posed to the health of women and their children by existing levels. The difference in the age distribution between women identified in the antenatal clinic survey and those identified in the household survey makes inferences about the wider population of women of reproductive age in Ado-Ekiti problematic. However, that 25 per cent of women in the antenatal clinic population had infections which can act as co-factors in the transmission of HIV is extremely significant in the context of the increasing threat of AIDS in Nigeria.

CHAPTER FIVE

HEALTH BELIEFS AND HEALTH-SEEKING BEHAVIOURS IN RELATION TO RTIS IN ADO-EKITI

Introduction

Reproductive tract infections are a cause for concern in Ado-Ekiti where one-quarter of a sample of antenatal clients were found to be infected with a sexually transmitted disease (STD). Reproductive tract infections, with the exception of those arising from viral agents, are relatively easily cured and thus health-seeking behaviours, early diagnosis and treatment remain important determinants of their incidence. How a disease is recognised, its perceived cause and its feared outcomes play a major role in determining how the condition is managed and what behavioural changes are deemed appropriate to the sick role. In the case of sexually transmitted diseases, symptoms recognition, aetiological concepts and health beliefs may be important not only as factors in the seeking of timely and effective treatment but also in determining changes in sexual activity and the spread of infection.

This chapter investigates locally recognised causes of reproductive ill-health in Ado-Ekiti and explores how symptoms consistent with an infection of the reproductive tract are perceived in terms of causation, appropriate treatments and possible outcomes. It describes the characteristics of women who report themselves to have symptoms consistent with a RTI and explores how symptomatic women react to their symptoms in regard to treatment choice and the continuation or discontinuation of sexual activity. The findings are discussed in terms of their implications for culturally sensitive health care initiatives and for health education.

The cultural definition of illness

All societies have belief systems with which to explain disease, a phenomenon that is both individually upsetting and socially disruptive (Engel, 1984:39). The dominant model of disease in Western societies is the biomedical model. In this scientific model, the living organism is seen as a machine which functions as a result of the coordinated actions of its constituent parts; organs, tissues, cells, molecules.

A theoretical distinction can be made between disease and illness, which allows a distinction to be drawn between biomedical definitions and local, culturally determined definitions of natural phenomena. 'Disease' is a derangement or abnormality in human function and is defined in biological terms; it is a pathological condition which may or may not be recognised culturally. 'Illness' signifies the perception and experience of a disease by an individual and society's reaction to it; it is a culturally constructed reaction

to disease or perceived disease and may bear little relation to the underlying pathological process (Fabrega and Zucker 1979). Thus physicians diagnose and treat diseases, while patients suffer illness (Eisenburg, 1977).

Kleinman (1978) developed a theoretical model in an attempt to understand health, illness, and healing in society as a cultural system, and to compare such systems cross-culturally. With this 'Explanatory Model' he sought to provide a framework for describing individual systems and for making cross-cultural comparisons between different medical systems, and hence to produce a more systematic analysis of the impact of culture on sickness and healing. This framework recognises that 'health care systems' (that is, the cultural systems that articulate health, illness and healing within a society) are made up of a number of domains: for example, the popular domain of the family and the wider community, where sickness and illness are first recognised and where the majority of therapy occurs; and the professional domain, to which professional biomedically trained personnel belong.

The Explanatory Model for a particular sickness may differ among the different domains which make up a given health care system. Lack of communication between people holding conflicting Explanatory Models can lead to impaired health care. Such conflicts are particularly striking in countries such as Nigeria where the folk model differs so markedly from the biomedical model. However, even in the West, where the folk model is grounded in the scientific model there are cultural differences and attitudes reflected in the Explanatory Model. In studies in the USA it has been found that patients of different ethnic or cultural backgrounds vary systematically in their clinical behaviour. The groups vary in the specificity and style of medical complaining, in the nature of their anxiety about the meaning of symptoms, in their focus on particular organ systems and in their response to therapeutic strategies (Zborowski, 1952; Mechanic, 1963; Zola, 1966). Given the same set of body sensations, members of different cultural groups will selectively attend to, complain about and seek professional help for some symptoms and not others. Rational treatment does not necessarily restore the patient to health even if the biomedical abnormality is rectified, and conversely, biomedically redundant treatment can result in recovery (Hahn and Kleinman, 1983; Moerman, 1983).

The beliefs held by persons in a society play a significant part in both disease causation and disease cure (Hahn and Kleinman, 1983). Prince (1964) presented a useful discussion of the Yoruba concepts of causation. Among the Yoruba, misfortunes, including diseases, are divided into three categories according to cause: natural, preternatural and supernatural. Natural causes include those such as bad odours, hereditary factors and smoking hemp, or substances in the body which become unbalanced and cause illness.

Supernatural causes include those arising from the pantheon of Yoruba deities, the *Orisa*. There are traditionally 401 *Orisa*, one or more of which are associated with each lineage. These gods, which ensure health, prosperity and fertility for their

worshippers, may also, if wronged, cause such misfortunes as smallpox and infertility. An individual's spiritual double (*Ikeji*) may cause illness if his earthly counterpart does not fulfil the 'contract' made before entering the world which stipulates such aspects of his life as number of wives and type of work. Ancestors, whilst not frightening as in some other cultures, may bring about misfortune if they do not receive a proper burial and occasional sacrifices.

Preternatural causes are those arising from the practices of sorcerers, from cursing or from witchcraft. These reflect hostilities and jealousies within the community. The Yoruba medical ideological system places great emphasis on social relations. Many traditional diagnostic techniques are designed to reveal problems in one's social field of activity such that :

> Divination ... becomes a form of social analysis, in the course of which hidden struggles among the individuals and factions are brought to light so that they may be dealt with by traditional ritual procedures (Turner, 1964:232).

Symptoms and sickness which are short, self-limiting and familiar can be put down to dietary indiscretions, chills and minor traumata, but if a disease persists in spite of simple counter-measures, suspicions will be aroused about the operation of personal and spiritual forces whose nature must be properly defined and divined before the patient can hope for relief. The *onisegun* (herbalist) deals with the commoner, more easily recognised disorders; for 'deeper' problems such as those arising from witchcraft, the afflicted person may consult a *babalawo*. These healers specialise in divination and consult oracles for the diagnosis and cause of a patient's illness. The *babalawo*'s healing addresses the patient's place in the natural and supernatural world and seeks to restore balance and equilibrium in her social relations, the disturbance of which is the ultimate cause of her misfortune.

Yoruba concepts of disease causation are not shared by all members of society. This was evident in Ado-Ekiti where there often appeared to be a wide communication gap between doctors (the vast majority male) and their female patients. A number of the doctors who were involved in the study had little knowledge of the locally defined illness categories and found them difficult to accept as being worthy of investigation. Several of the women interviewed said that they had reported to doctors with conditions recognised by local illness categories only to be told bluntly that the illness did not exist, leaving the women without explanations for their conditions. This illustrates clearly the clash of conflicting Explanatory Models which can occur.

Locally recognised conditions leading to impaired reproductive health

The following account is based chiefly on group discussions with women in Ado-Ekiti and interviews with two traditional healers, one a herbalist (*onisegun*) and one a healer-diviner (*babalawo*). The methodology used in this qualitative investigation was described in Chapter Three.

In Yoruba medicine, illness is classified according to the type of person it afflicts: thus there are illnesses of men, of women and of children. They are also classified by the part of the body they affect such as skin illnesses and illnesses of the blood (Buckley, 1985: 25). A particular illness may be caused by any one of the agents discussed in the previous section but most illness episodes are the result of *arun*. Buckley (1985: 31) distinguishes two uses of the Yoruba word *arun*. He uses the term 'illness' to refer to 'a set of identifiable symptoms or an affliction of the body' and 'disease' to refer to substances in the body which cause illness. These substances are also seen in Yoruba medicine as a prerequisite for the normal functioning of the body. Thus, the use of the term 'disease' in this context is somewhat at odds with the use of it in English as referring to something abnormal, malign or disordered. In the absence of a more suitable translation the word *arun* in its second useage will be taken to refer to these substances.

Arun in this sense can be divided into two groups, *kokoro* (which Buckley translates as 'germs') and *aron* ('worms'). One of the recurring themes that emerged from interviews and discussions was the belief that *arun* are necessary for normal function. For example, without worms a person would not be able to eat or to pass excreta. It is only when these worms become excessive that they lead to ill-health.

The body should be in balance. For instance, fluids such as menstrual blood should not be too thick or too thin, too dark or too light. Excessive heat or cold must be rectified through the use of an appropriate medicine which can cool the heat or warm the cold, so restoring harmony. The maintenance of the hot-cold balance is very important after childbirth. To avoid the blood 'clotting' or 'freezing' after delivery the woman must massage herself with hot water. Some women also massage with 'hot drink' (schnapps or gin). If the blood is allowed to freeze it will not be able to flow freely and so may lead to complications and even death. Similarly, a recognised cause of excessive bleeding after birth is high body temperature which causes the blood to 'melt'. This can be rectified by using cold herbs to reduce the internal heat.

When asked about the cause of reproductive illnesses respondents frequently attributed them to excesses of some kind: for example, too much carbohydrate, too much sweet food or too much sex (promiscuity). *Ata* (an object thrown at people to harm, a charm) was mentioned in connection with illnesses arising from adultery or with cancer. Poor or inappropriate methods of hygiene, such as infrequent changes of sanitary protection or the use of dirty toilets, were also cited as causes of reproductive ill-health.

Locally recognised conditions in Ado-Ekiti

Table 5.1 outlines the symptoms, causes, treatments and possible outcomes of the eight illnesses most frequently mentioned by discussants in relation to reproductive health. These and other conditions are more fully discussed below.

Table 5.1
Locally recognized illnesses in Ado-Ekiti that impair women's reproductive health

Illness	Symptoms	Cause	Treatment	Outcomes
Ifibe Female'	Lower abdominal pain	Allergies to certain foods. Carbohydrates. Sweet/sugary foods.	Herbs.	All women have it and without it cannot conceive.
Ifibe Male'	Severe lower abdominal pain. Vaginal discharge. Vaginal itching. Irregular, dark or smelling menses.	Sexual promiscuity.	Herbs, if ineffective, western drugs e.g. antibiotics/injection.	Delayed conception. Miscarriage at advanced stage of pregnancy. Infertility.
Atosi	Translated as gonorrhoea' and equivalent to male' ifibe.			
Jabe	Vaginal itching. Vaginal discharge.	Use of dirty toilets.	Wash with salt solution. Vaginal creams e.g. Canestene.	Delayed conception. Infertility.
Eda	Semen flows out after sexual intercourse.	Promiscuity, especially by the male partner.	Herbs, traditional cures.	Inability to conceive.
Somuroro	Enlargement of breasts prior to menses, itching and/or fluid secretion from breast.	Build up of arun in the breast.	Herb. Wash with traditional soap.	Inability to conceive.
Latanlatan	Sudden ache in thighs.	Worm.	Herbs causes worm to be excreted.	Delayed conception. Miscarriage. Inability to conceive.
Narun	Blurred vision, body itching, headache, darkening of the complexion.	Impure blood.	Traditional medicine. Blood tonics.	Inability to conceive.

Source: Ado-Ekiti data 1992.

Ifibe

Ifibe can be divided into two types, the mild ('female') type and the more severe ('male') type. The 'female' type of *ifibe* is common to all women and without it a woman cannot conceive. The primary symptom is a lower abdominal pain unconnected with intestinal disorders such as diarrhoea. Most respondents made a distinction between the

lower abdominal pains that occur around the menstrual period (*inu osu*) and *ifibe*. The lower abdominal pains of *ifibe* may be accompanied by 'hotness in the womb'.

Severe or 'male' *ifibe* is a serious illness and can lead to delayed conception, miscarriage at an advanced stage of pregnancy and infertility. It was not entirely clear at what stage 'female' *ifibe* becomes 'male' *ifibe*. However, the latter is associated with extremely severe lower abdominal pains. One woman described the pains as being so severe that

> ...when you are suffering from this you may even be crying that it's aching and be rolling from one side of the bed to the other and even find it difficult to stand up.

Lower abdominal pain may be accompanied by vaginal discharge, vaginal itching, irregular dark, malodorous menses or a burning sensation with urination.

'Female' *ifibe* may be caused by 'allergies' to certain types of food such as okra or melon, by eating certain types of carbohydrates, particularly pap, and by eating too many sweet or sugary foods. 'Male' *ifibe* arises as the result of 'waywardness'.

The majority of respondents cited the use of herbs as the treatment for *ifibe*, particularly as supplied by *alagbo omo*, traditional healers who specialise in the preparation of herbs for the treatment of new-born babies and children. Should this be ineffective, and particularly in the case of 'male' *ifibe*, the woman may have to resort to the use of Western drugs or injections.

The following description of *ifibe* by the *onisegun* brings together its essential features:

> *Onisegun*: The one that aids conception does not cause complication, it is the 'female' *ifibe*. The 'male' *ifibe* is severe and it causes a delay in conception. It often leads to heavy whitish discharges. Every woman has the 'female' *ifibe*. A person who has the 'male' *ifibe* will have to be operated on in the hospital. The 'male' *ifibe* is easily passed on through sexual intercourse
>
> Interviewer: Why does *ifibe* get more severe in some women than in others?
>
> *Onisegun*: Sexual promiscuity is often the cause of its severity in some women. Everybody has *ifibe* but it gets more severe in some people than in others as a result of waywardness. Those who have it ('male' *ifibe*) would not confess that they have been wayward.

Atosi

This illness is translated by Abrahams (1958) as gonorrhoea and most people who speak English translate it as such. Among the interviewees there were some mixed opinions as to whether *atosi* and 'male' *ifibe* were the same thing. It was said that severe *ifibe* in a woman leads to *atosi* in men. There was also some question whether both men

and women can have *atosi*. The majority view among the women interviewed, however, was that the 'male' type of *ifibe* in women is the female equivalent of *atosi*.

Eda

This illness was frequently, with *ifibe*, one of the first to be mentioned by respondents in discussions of reproductive health. A woman who has *eda* cannot conceive because after sexual intercourse the semen (*ato*) flows from the woman's body instead of going 'into the womb'. The semen may flow out immediately or during a period of anything up to three days after intercourse. *Eda* can affect both men and women. It is attributed to heat within the body which may be caused by having too many sexual partners, especially on the part of the male. Two of the women interviewed said that they had been unable to conceive because their husbands had *eda*. In both cases the women had divorced the men, remarried and subsequently successfully given birth. Without exception respondents said that *eda* could only be cured using traditional means.

Jabejabe

This is often translated locally as 'toilet disease' and is ascribed to the use of dirty toilets. The primary symptom of *jabejabe* is vaginal itching, which may be so severe as to cause blistering (*eẹla*), and may also be accompanied by vaginal discharge. One of the recognised causes of an inability to conceive is excessive scratching of the vagina. Women with *jabejabe* may suffer from delayed conception; if left untreated, it can lead to infertility. Traditional medicines were not considered as effective as vaginal creams such as canestene or antibiotics available from patent medicine stores and pharmacies. A number of women, when asked further about the use of antibiotics, described how they opened the capsules and applied the contents directly to the affected areas. Washing with salt solution was also mentioned as providing relief.

Somuroro

When a woman is suffering from *somuroro*, approaching or during her menstrual period the breasts become enlarged 'as if one is pregnant'. The breasts will be itchy and may secrete fluid. After menses the breasts will return to normal. This is caused by a build-up of *arun* in the breast and it affects the womb so that she cannot conceive. *Somuroro* is best treated using traditional medicines, especially washing with soap.

Latanlatan

This is indicated by a sudden ache in the thighs and can lead to delayed conception or, if it occurs in a pregnant woman, to miscarriage. *Latanlatan* is caused by a worm. If the woman is pregnant the worm attaches itself to the products of conception

and causes them to 'come down'. *Latanlatan* is treated using herbs that cause the worm to be passed out in the excreta.

Narun

This illness is signalled by blurred vision, itching all over the body, headache (noises in the head) and a darkening of the complexion. *Narun* may cause serious sickness and may result in a delay in conception. The cause of *narun* is said to be impure blood. This may be treated by using traditional medicines or Western blood tonics to purify the blood.

Ase lilami and *ase dudu*

Conception is the result of a man's sperm (*ato*) and the woman's menstrual blood (*eje ase*) coming together to form a child. To achieve this the menstrual blood must be healthy - 'clean', red and not too thick. There are two menstrual illnesses which prevent women becoming pregnant: *ase dudu* and *ase lilami.*

Ase dudu is translated as black blood and was described as looking like 'the blood of a slaughtered animal that has clogged together'. *Ase dudu* is caused by a certain type of worm and arises when the blood flow is inhibited. If a woman has not been looked after properly after delivery or if all the blood does not come out after a spontaneous abortion this may lead to *ase dudu. Ase lilami*, or watery menstruation, is thinner than normal and not so red. It is caused by heat in the belly. Both the conditions may also lead to irregular menstruation, shorter menstrual periods (less than five days) or ultimately to the complete cessation of menstrual flow.

Vaginal discharges

Normal vaginal discharges were described by the majority of respondents as being white, slimy and like starch. It is recognised that women often have heavy discharges during pregnancy. These are not a cause of concern unless it is a 'dirty' discharge. This is a sign of disease and is described as being smelly with a bad colour (yellowish, yellow-green or brown). It may be accompanied by itching.

Concepts of reproductive health in Ado-Ekiti

The group discussions revealed that women are very aware of the need to keep their bodies in balance so as to maintain good health. This is achieved by avoiding excesses and carrying out the necessary procedures to ensure that events such as childbirth do not give rise to a build-up of potentially harmful substances in the body. An important indicator of her state of health is the woman's menstrual flow; she monitors closely its timing, quantity and quality. Deviations from the norm are a cause for concern, for they may influence her ability to conceive and be detrimental to her own health and that of her partner.

It appears that in Yoruba culture as in many others (Good, 1980; McCormack, 1984; Myntti, 1984), too little bleeding is thought to cause a build-up of impurities and to upset a woman's internal body balance. This has important implications for the use of contraceptives such as the pill, IUD and injection, which may profoundly affect a woman's menstrual flow.

Women recognise lower abdominal pain, foul smelling discharges and vaginal itching as signs of illness which may lead to infertility. However, it is not clear at what degree of severity symptoms associated with 'normal' illnesses, such as 'female' *ifibe,* are judged to be malign and therefore to warrant concern. What became apparent from the discussions was the fear with which women regard these illnesses because of the temporary or permanent impact they may have on their fertility.

Ascribing biomedical labels to locally defined illnesses is problematic. However, the symptoms associated with 'male' *ifibe*, *atosi* and *jabejabe* do seem consistent with reproductive tract infection. Both 'male' *ifibe* and *atosi* are sexually transmitted and caused by sexual promiscuity or 'waywardness'. The other two sexually transmitted diseases mentioned, *eda* and *magun*, have no equivalent in Western medicine. As is common in sub-Saharan Africa (Janzen, 1981), in Yoruba medicine it is clearly recognised that pathology in social relations can lead to illness. *Magun* represents a clear example of illness arising from social strife - in this case the transgression of rules regarding sexual behaviour - and illustrates how sexual intercourse provides a common point of contact for medicines or spells that are sent through the malign interventions of others.

Reporting of symptoms consistent with a RTI, currently and in the past year

A survey was made of women in Ado-Ekiti which asked about symptoms consistent with an RTI (for details of the methodology see Chapter Three). Respondents were classified as having symptoms consistent with a reproductive tract infection if they had any of the following (see Appendix 13)

1. Lower abdominal pain (without diarrhoea) with or without abnormal vaginal discharge, menstrual irregularities, pain with intercourse, not associated with a recent delivery or abortion or delayed menstruation.
2. Abnormal vaginal discharge (with or without vaginal itching).
3. Genital sores or ulcers.

Based on these operational criteria, 92 (20 per cent) of women interviewed reported having symptoms consistent with a RTI currently or in the year before the survey. Of these women 38 (41 per cent) reported having current symptoms. Table 5.2 shows the distribution of complaints among the 54 women reporting symptoms in the past year and the 38 women with current symptoms.

Table 5.2
Distribution of symptoms consistent with an RTI reported by women as being experienced currently or as having been experienced in the year before the survey, Ado-Ekiti, 1991.

Reported symptoms	Currently		In year before survey	
	No. of women (Total = 38)	% of total	No. of women (Total = 54)	% of total
Menstrual irregularities	8	21	16	29
Pain with intercourse	12	31	13	24
Lower abdominal pain	28	73	43	79
Abnormal vaginal discharge	9	23	23	42
Vaginal itching	9	23	19	35
Genital sores/ulcers	5	13	4	7

Source: Ado-Ekiti data tape 1992

The pattern of complaints is shown in Table 5.3. It can be seen that the vast majority of women (77 per cent) reported lower abdominal pain. Of these women 82 per cent reported lower abdominal pain plus at least one of the following: abnormal vaginal discharge, vaginal itching, pain with intercourse or menstrual irregularities. Some 35 per cent of women with symptoms reported an abnormal vaginal discharge.

Table 5.3
The pattern of complaints reported by women reporting symptoms consistent with an RTI in the last year (but not currently) and currently, Ado-Ekiti.

Combination of reported symptoms	Pattern of complaints	
	Last year	Currently
Lower abdominal pain only	12	1
Lower abdominal pain plus one or more symptom	31	27
Discharge without lower abdominal pain	11	6
Genital sore without lower abdominal pain/discharge	0	4
Total	54	38

Source: Ado-Ekiti data tape, 1992.

The pattern of complaints varies between those reporting current symptoms and those reporting symptoms in the past year, with 22 per cent of women in the latter group reporting lower abdominal pain without other associated symptoms compared to only 3 per cent in the former group. This may in part be a reflection of the form of the questionnaire, women without current symptoms being identified using local illness categories (*ifibe* and *jabejabe*) rather than through a symptoms check-list. Although the interviewers were instructed to ask in detail about the presence of any associated abnormal vaginal discharge, menstrual irregularities or pain with intercourse, there could have been some degree of underreporting of these symptoms. The reporting of abnormal vaginal discharge also appears quite low given that it is such a common gynaecological complaint. A community study of reproductive tract infections in Bangladesh (Wasserheit *et al.*, 1989) found that the vast majority of symptomatic women (97 %) reported abnormal discharge. This compares with 43 per cent in the present study. The fact that women without current symptoms were not explicitly asked about vaginal discharge but rather about its presence in association with either *ifibe* or *jabejabe* may account for this low figure. Changes in vaginal discharge not recognised by the woman as being associated with either illness may have gone unreported.

All 38 women who reported current symptoms were invited to the Ado-Ekiti State Specialist Hospital for a gynaecological examination and free treatment. Of the invited women 21 (55 %) actually attended the hospital and 17 received complete examinations. Of the four women whose examinations were not complete, one was found to be suffering epigastric pain, two were currently menstruating and failed to return for an internal examination and one, a pregnant woman, had, in the time period between the household survey and her visit to the hospital, begun to bleed vaginally and was referred to an obstetrician.

Of the 17 women who received a complete examination, two were suffering from primary infertility. One of these women had no sign of current infection, while the second had chlamydia and candida albicans. Two women were suffering from secondary infertility: one of these had mucopurulent cervicitis; the second had a chlamydia infection. Three women were suffering from pelvic inflammatory disease, three women had trichomoniasis, and the remaining six women were suffering from candidiasis, bacterial vaginosis or mixed infections (Table 5.4). Although of the pathogenic agents that may cause genital ulcers only syphilis was tested, it appeared from clinical evidence that genital sores reported in the survey responses were in fact irritations from excessive scratching.

Table 5.4
Distribution of complaints among symptomatic women who received a clinical examination, Ado-Ekiti.

Complaint	Number
Primary infertility	1
Primary infertility + chlamydia + candidiasis	1
Secondary infertility + mucopurulent cervicitis	1
Secondary infertility + chlamydia	1
Pelvic inflammatory disease	4
Trichomoniasis + candidiasis	3
Bacterial vaginosis	3
Bacterial vaginosis + candidiasis	1
Candidiasis	2
Total	17

Source: Ado-Ekiti data tape 1992

The small number of symptomatic respondents who were identified and who completed a full examination makes the results difficult to interpret. Of the 17 women with completed examinations all but one were found to have a current reproductive tract infection which indicates that the questionnaire was reasonably sensitive. The high proportion of women attending the hospital suffering from infertility (4 out of 17) is likely to be the result of women with severe complaints seizing the opportunity for examination and treatment in the hope of resolving a longstanding problem.

Characteristics of women reporting symptoms consistent with pelvic inflammatory disease

One of the major difficulties in interpreting the reporting of symptoms consistent with a reproductive tract infection is the fact that women with RTIs often do not experience any recognisable symptoms. Ten to 50 per cent of women with trichomoniasis, 25-50 per cent of women with gonococcal cervicitis and probably more than 50 per cent of women with chlamydial cervicitis or bacterial vaginosis are asymptomatic (Holmes *et al.*, 1990). Arya *et al.* (1973) in a community study in Teso, Uganda found that of 54 women with confirmed gonorrhoea almost one-half were symptomless. Similarly in a study by Bang *et al.* (1989) in rural India it was found that, excluding pain in the lower abdomen and backache, 84 per cent of women with gynaecological diseases were without symptoms. Hence any comparison between symptomatic and asymptomatic women on the assumption that those not reporting symptoms are not infected will result in highly questionable findings. In the case of pelvic inflammatory disease (PID), however, it is thought that most women are symptomatic. Thus a meaningful comparison can be made between women reporting

and those not reporting symptoms consistent with its presence. There is some evidence of the existence of an 'atypical' pelvic inflammatory disease which may be relatively or completely painless and which appears to be particularly associated with chlamydial infections. Much of the knowledge of atypical PID is, however, based on indirect evidence or on direct evidence which is unconfirmed. Its true incidence is unknown (Wolner-Hanssen *et al.*, 1990).

Based on the assumption that most women who have pelvic inflammatory disease experience lower abdominal pain alone or together with other symptoms (see Appendix 13), a comparison can be made between those women reporting and those women not reporting such symptoms. As indicated in Table 5.5, the majority of women who reported symptoms consistent with pelvic inflammatory disease (a subset of the 92 who reported RTI sympotms of some sort) were in the 25-34 age group and 23 per cent of that group reported symptoms. There is no notable difference in the reporting of symptoms by education. There was, however, a very significant difference in terms of religious affiliation. Twenty-seven per cent of women belonging to the Christian 'new churches'[1] reported symptoms consistent with PID compared to 13 per cent of Catholics, 11 percent of Muslims and just seven per cent of Protestants. The extent of the differential suggests the operation of a reporting bias. It may be that members of the new churches are more 'honest' or more willing to report any symptoms they may have and may actually present a more accurate picture of the true incidence of PID. This is difficult to test using the existing data. Religious affiliation could potentially reflect a number of possibilities. A prominent feature of these 'new churches' is the use of the power of prayer to cure sickness. To a varying extent these churches eschew the use of Western medicine in the belief that it is of limited use in affecting a cure and that it may even be harmful to those who use it. It is possible that women who belong to religious groups that reject the use of Western medicines such as antibiotics may suffer from more severe or chronic symptoms which they are perhaps more likely to report. It may also be that the characteristics of women who belong to 'new churches', such as age, education, marital or sexual behaviour or the type of maternity care used, put them at higher risk of infection. A basic breakdown of such characteristics by religious affiliation gave no obvious indication of any such difference.

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[1] Under this category are grouped the Aladura churches such as the Christ Apostolic Church (CAC) and the Church of Cherubim and Seraphim, and sects such as the Jehovah's Witnesses.

Table 5.5

Relationships between characteristics of women and whether or not reported symptoms consistent with PID, Ado-Ekiti.

Characteristic		No symptoms		Reported symptoms		Total	
		N	%	N	%	N	%
Age	17-24	108	86	17	14	125	100
	25-34	127	77	37	23	164	100
	35-49	116	87	17	13	133	100
Education							
	None	51	88	7	12	58	100
	Primary	99	80	24	20	123	100
	Secondary	160	83	33	17	193	100
	Secondary+	40	85	7	15	47	100
	Missing	1	100	0	0	1	100
Religion **							
	Muslim	66	89	8	11	74	100
	Catholic	52	87	8	13	60	100
	Protestant	102	93	8	7	110	100
	'New churches'	122	73	46	27	168	100
	Missing	9	90	1	10	10	100
No. times married **							
	0	93	94	6	6	99	100
	1	233	81	53	19	286	100
	1+	25	68	12	32	37	100
Ranking as wife							
	First (senior wife)	36	86	6	14	42	100
	Second+	56	72	22	28	78	100
	Only wife	259	86	43	14	302	100
Husband/partner has other wife/partner							
	Yes	103	78	29	22	132	100
	No	194	83	40	17	234	100
	Don't know	54	96	2	4	56	100
Ever had delayed conception based on respondent's statement **							
	Yes	41	58	30	42	71	100
	No	308	89	39	11	347	100
	Don't know	2	50	2	50	4	100
Spontaneous abortion **							
	Yes	47	68	22	32	69	100
	No	302	86	47	14	349	100
	Don't know	2	50	2	50	4	100

Table 5.5 continued.

Characteristic	No symptoms		Reported symptoms		Total	
	N	%	N	%	N	%
Induced abortion *						
Yes	56	75	19	25	75	100
No	295	85	52	15	347	100
Ever use contraception *						
Yes	110	78	31	22	141	100
No	241	85	40	15	282	100
Ever use IUD *						
Yes	9	56	7	44	16	100
No	342	84	64	16	406	100
Sanitary protection						
Rag	58	79	15	21	73	100
Other	293	84	56	16	349	100
Husband/partner's education						
None	46	85	8	15	54	100
Primary	58	76	18	24	76	100
Secondary	134	82	29	18	163	100
Secondary+	84	87	12	13	96	100
Don't know	29	88	4	12	33	100
Husband/ partner's age						
19-29	63	87	9	13	72	100
30-39	107	78	30	22	137	100
40-49	73	78	21	22	94	100
50-80	71	87	11	13	82	100
Don't know	37	100	0	0	37	100
Mean age first sexual intercourse	18.5		18.2			
Mean no. sexual partners ever	1.9		2.4			
Mean age at first marriage	20.9		20.8			

* Significance $p<0.05$

** Significance $p<0.01$

Source: Ado-Ekiti data tape 1992

Returning to Table 5.5, women with a higher mean number of past sexual partners were more likely to report symptoms of PID although this was not statistically significant. Women who had been married more than once, and who therefore had probably on average had more sexual partners, reported symptoms of PID at almost double the rate (32%) amongst women who had been married only once (19%). The proportion of second or higher order wives reporting symptoms was also twice that for only or first ranking wives. Twenty-six per cent of second and higher order wives had been married more than once compared to 7% of first order wives and 8% of only wives. There was a

difference between women whose husbands or regular partners had other wives or regular partners as well. However, neither of these latter differences was statistically significant.

Forty-two percent of women who reported having experienced a delay in conception at some time in the past also reported having symptoms of PID compared to only 11 per ecnt of those reporting no such delay. Of women who had had at least one spontaneous abortion 32 percent reported symptoms of PID, compared with 14 per cent of women who had not had a spontaneous abortion. One quarter of women who reported having had an induced abortion also reported symptoms of PID compared with 15 percent of women who had not had an abortion.

Twenty-two per cent of women who acknowledged ever-use of contraception also reported symptoms of PID compared with 15 per cent of never users. The reporting of symptoms of PID was statistically significantly higher among those women who had ever used an IUD compared with those who had never used one, but the very small number of women who had ever used an IUD (16) precludes any meaningful interpretation of this finding.

Most PID arises from infections such as gonorrhoea, chlamydia and bacterial vaginosis that start in the lower reproductive tract. The chance of these lower reproductive tract infections ascending to the upper reproductive tract is greatly increased if the cervix is dilated through induced abortion, spontaneous abortion, stillbirth or childbirth. The higher proportions reporting symptoms among women with past experiences of spontaneous or induced abortion is consistent with this possible aetiology.

The interpretation of reported symptoms is always problematic in that reporting is influenced by the respondents' own perceptions of the nature of their symptoms. Conditions which may be recognised as disease by some women may be accepted as normal by others. Women with severe or chronic conditions may be more likely to report symptoms. Other characteristics of the respondent, such as age or education, may influence her response either positively or negatively. For example, in this study it may be that the interviewers, all of whom were university or polytechnic graduates in their mid-20s, found it easier to build a rapport with more educated women and so were more easily able to elicit responses from them. Moreover, given the nature of the enquiries, privacy was an important requisite for honest reporting. It may be that women of low socio-economic status are at higher risk of RTI, and that in the survey these women were less likely to have been interviewed in situations where privacy could be easily attained.

When the two groups of women are considered, those who reported symptoms consistent with PID and those who did not, it must be borne in mind that there may have been an underreporting of symptoms and that certain reporting biases may have been in operation. That there were no significant differences in age or education between

symptomatic and asymptomatic women is inconsistent with previous studies (Aral, 1992) and could reflect such biases. Although it would be ill-advised to lay too much emphasis on the differentials displayed in the current data, the strong association between reporting of symptoms and religious affiliation is interesting and is worthy of further investigation.

Health-seeking and sexual behaviours of symptomatic women

Women and healers in Ado-Ekiti recognise illnesses, both sexually and nonsexually transmitted, which exhibit symptoms that are consistent with a biomedical diagnosis of RTI. Table 5.1 reflects the socially accepted causes and management options for these reproductive health problems. However, the gap between socially professed and actual behaviours can be very wide. More illuminating than what women claim should be done is what women with symptoms actually do. It should be emphasised at this point that in terms of health-seeking behaviours and health management, an essential factor which determines therapy choices and the adoption of the sick role is perceived health and illness. Thus, although clinical evidence is not available for all women who reported symptoms, in the present context the interest lies in what they believed to be the problem and how they dealt with it.

Various sources of health care are available in Ado-Ekiti. The town has a government hospital, two mission hospitals and a number of local government clinics. Also, as is immediately obvious to any casual visitor, there are many privately run hospitals, clinics and maternity centres. In addition to these formal services are maternity centres and spiritual healing provided by churches such as the Christ Apostolic Church, and an array of traditional healers including herbalists, diviners and birth attendants. Pharmacists, patent medicine stores and market drug sellers are popular not only as outlets for pharmaceuticals, but also for diagnosis and treatment.

The analysis of health-seeking behaviour where multiple health care alternatives exist can be undertaken using a number of different frameworks.[2] In this study a snapshot of features of the disorder which may affect health care choices was taken with the aim of identifying relevant factors that may be incorporated into a wider model of health-seeking behaviour.

Table 5.6 presents the causes of the perceived illnesses described by symptomatic respondents. Of those who were able to attribute a cause, 50 per cent thought their symptoms were due to natural causes,[3] 26 per cent thought they arose

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[2] A multifactoral model which explores how the interaction among the features of the client, service, therapist and illness affects the resulting therapy choice, is the most attractive in terms of presenting a complete picture. Such a wide-ranging investigation into the processes underlying health-seeking behaviours was beyond the scope of this study.

[3] The term 'natural' here is not used in the sense of that which is not 'supernatural' but rather in the sense that the discomfort or illness is perceived as being normal and common to all women or as arising from the proliferation of a naturally occurring substance, for example, *arun*.

from the sexual activity of themselves or their husbands, 8 per cent ascribed them to a contraceptive method or previous abortion, and 16 per cent attributed their problems to the use of unhygienic toilets. The extent to which the respondents attributed their symptoms to natural causes is indicative of the fact that many symptomatic respondents described themselves as suffering from the socially acceptable and non-stigmatising 'female' *ifibe*, even though their symptoms, profuse vaginal discharge, vaginal itching and severe lower abdominal pain, were more consistent with 'male' *ifibe*, which is recognised as being caused by sexual promiscuity. This is not to say that all these women were indeed suffering from an STD. A sizeable proportion of symptomatic reproductive tract infections are caused by the overgrowth of naturally occurring organisms, and are not associated with either sexual activity or assaults to the reproductive tract arising from childbirth, abortion or transcervical procedures. Rather, it appears that a similar set of symptoms can be interpreted in different ways, blurring what seem at first to be distinct illness categories. As is suggested in Tables 5.7 and 5.8 this 'haziness' may be important in explaining why women with what may be an identical set of physical symptoms will react to them in different ways in terms of health care choices and the types of behaviour deemed to be appropriate to the condition.

Many studies have shown that there is a considerable pragmatism in choice of health care options in sub-Saharan Africa. In medically pluralist societies this often means that relief is sought from a number of sources either simultaneously or sequentially. The present study showed that this was definitely true of health-seekers in Ado-Ekiti. For example, it was not unusual for women suffering from infertility to seek relief from a whole array of providers. One respondent who had not been able to conceive for over three years described how she first tried herbs prepared by a traditional healer. When these proved to be ineffective she went to the State Specialist Hospital, but doctors there were unable to help. At the time of interview she was being treated by a spiritual healer and was also intermittently using drugs from a patent medicine store in Lagos. Women can move between formal and informal sources of health care in a search for relief which may last weeks, months or even years. In the case of sexually transmitted diseases, where immediate and effective treatment is necessary to minimise complications and to reduce the spread of infection, it is important to identify the first line of treatment that symptomatic women seek. Should STDs be identified and appropriately treated at this early stage, the degree of harm resulting from them may be greatly reduced for both the woman and her partner. Hence it is appropriate that in the following discussion emphasis is laid on the initial treatment choice.

Table 5.6
Cause of perceived illness as reported by symptomatic women (N=92), Ado-Ekiti.

Cause	%	Number
Natural		
Eating too much starches and sugars	20	18
Impure blood	5	5
'Worms'	10	9
'Is natural'	7	6
Sexual activity		
Husband met with infected woman	11	10
Infected by extramarital partner	9	8
Became ill after husband took 2nd w	2	2
Contraceptive method		
Family planning injection	1	1
Contraceptive pill	1	1
IUD	2	2
Abortion		
Following induced abortion	2	2
Hygiene		
Using dirty toilets	13	12
Don't know		
	17	16

Source: Ado-Ekiti data tape 1992

In Table 5.7 a comparison is made between the causes of the symptoms, as given by the symptomatic respondent, and the stated first source of treatment. What is immediately apparent is the use of 'informal' health services for conditions which are defined as being of natural causation. Thirty-four per cent of women turned to traditional or spiritual healers for their problem and 29 per cent sought medication from pharmaceutical outlets. In fact, pharmacists and patent medicine stores are an important source of treatment for many symptomatic women who seek relief through injections and antibiotics. Only one-third of all symptomatic women who responded reported having visited a doctor either in the public or the private sector. Proportionately, the women who ascribed their conditions to sexual activity were more likely to visit a doctor. The attendance of these women at private rather than government hospitals or clinics results in part from the belief that the staff in private establishments are not only more discreet, but are able to give faster and more efficient service. The symptoms experienced by the women in the various perceived causation categories were very similar, with the exception of women who ascribed their condition to dirty toilets, who experienced vaginal discharge sometimes accompanied by itching, but who did not report other symptoms such as severe lower abdominal pain. The patterns illustrated here would suggest that it is not the nature of the symptoms themselves, but the cause

to which they are ascribed, which plays a major role in determining which is the most suitable treatment option.

Table 5.7
Cause of symptoms and source of treatment as reported by symptomatic women, (N=76, excluding 'don't know' cause category), Ado-Ekiti.

Source of treatment	Cause					
	Natural	Sexual activity	Contra. method	Abortion	Hygiene	Total
Self	4				3	7
Friend or relative	1					1
Traditonal doctor	10	1				11
Spiritual healer	3					3
Pharmacist	5	10	1		5	21
Patent medicine store	6				1	7
Private doctor	5	8	1	1	2	17
Govt. clinic or hospital	4	1		1	1	7
Family planning clinic			2			2
Total	38	20	4	2	12	76

Source: Ado-Ekiti data tape 1992

Table 5.8 shows whether the respondent continued sexual relations with her partner while she was experiencing symptoms by the perceived cause of those symptoms. Of those who responded, nearly one-third stated that they had continued sexual relations. Forty-two per cent of women who ascribed their conditions to natural causes fell into this group. When why they decided to abstain, the women who did not continue sexual relations were reluctant to give categorical answers, preferring replies such as 'I didn't feel like it'. However, approximately half of the women in the 'natural' and 'hygiene' causation classification groups who practised abstinence claimed to have done so because their condition made coitus painful or uncomfortable. Interestingly, six of the women in the 'natural' group said that, although their symptoms made sexual intercourse painful, they continued because they wished to have children.[4] Only in the case of those women who ascribed their condition to sexual activity was danger to their partners' health given as a reason for abstinence. It would appear that, although experiencing similar and often painful symptoms, those women who ascribe them to natural causes are more likely to continue normal sexual relations with their partner, suggesting that the classification of disease helps in determining not only the appropriate treatment option but its impact on the woman's sexual behaviour.

[4] It is not known whether these women were under any coercion from their partners to continue sexual activity.

Table 5.8

Cause of symptoms and whether continued sexual relations with partner whilst experiencing symptoms, as reported by symptomatic women (N=76 excluding 'don't know' cause category), Ado-Ekiti.

Cause	Continued sexual relations			
	Yes	No	No response	Total
Natural	16	20	2	38
Sexual activity		20		20
Contraceptive method		4		4
Abortion		2		2
Hygiene	4	8		12
Total	20	54	2	76

Source: Ado-Ekiti data tape 1992

The basis upon which women ascribe their condition to particular causes is unclear. In the case of the 20 women who acknowledged that their illnesses were sexually transmitted, two had reached the conclusion from the fact that they had become ill after their husbands had taken second wives, in spite of the fact that neither of these women had noticed any symptoms in her husband. Of the 10 women who thought they were ill because their husbands had sexual relations with infected women, only five had been directly told by their husbands that they had acquired sexually transmitted diseases. Of the eight respondents who thought they had been infected by outside partners, only three had been informed by their partners that they were in danger of infection. The potential for mistaken self-diagnosis exists: jealous wives or guilty lovers in particular may be apt to ascribe the symptoms of 'innocent', non-sexually transmitted RTIs to sexually transmitted diseases. Similarly, women who attribute their symptoms to naturally occurring imbalances, poor hygiene, family planning methods or invasive transcervical procedures may in fact be suffering from infections which have been transmitted sexually.

Discussion

There is no doubt women recognise that symptoms associated with reproductive tract infections can have serious detrimental effects on their health and on their ability to conceive and bear children; however, their reactions to these symptoms vary considerably and are dependent upon what is believed to be causing them. It appears that women who believe themselves to have a sexually transmitted disease tend to turn to biomedical treatment, often in the form of pharmaceuticals sold over the counter. These women are likely to practise sexual abstinence until they judge their illness to be resolved. In contrast, those women who share similar symptoms, but ascribe them to natural causes, tend to choose more traditional forms of treatment and to continue sexual relations whilst experiencing symptoms, even though, in some cases, this is physically uncomfortable.

This situation raises a number of questions. On what bases do women decide the causes of their symptoms? Although women were categorical in ascribing their conditions to particular causes, often it was unclear what lay behind their interpretations. On the basis of this study, it is impossible to know what proportion of symptomatic women who did not have their symptoms diagnosed biomedically were suffering from a sexually transmitted disease or from a reproductive tract infection arising from another cause. To what extent do sexually and non-sexually associated causal categories correspond to biomedically defined realities?

Timely and effective treatment can have an important role in reducing the physical and social costs to women of RTIs. It is clear that the first source of treatment sought by symptomatic women is often not one at which a biomedical diagnosis is made by qualified medical staff. Often women turn to traditional healers or to pharmaceutical outlets such as pharmacies. Traditional healers have been criticised, particularly by medical doctors, for providing ineffective treatment which at times presents a danger to the patient's health, whilst pharmacies are often associated with the use of inappropriate drugs or dosages, leading to the incomplete resolution of infection and the build-up of resistant strains of the infective agent. However, it has been argued (Green, 1992) that traditional healers represent an important health resource which is available and culturally acceptable and which can be used in the fight against STDs and AIDS. An active example of the use of pharmacies in an effort to improve the quality of STD treatments is a pilot project currently being undertaken in Cameroon, which uses pharmacies as outlets for antibiotics sold as treatment kits for STDs (Townsend, 1992). Such informal sources of health care which are popular, familiar and convenient to their users could potentially provide both diagnosis, treatment and sexual counselling in an unthreatening environment.

From the Ado-Ekiti study it was apparent that there was often a considerable communication gap between (male) medical doctors and their female patients. Women who ascribed their conditions to locally recognised illnesses were given short shrift, especially if there were no obvious physical manifestations of the condition. However, with conditions such as *eda* and *magun* which are associated with sexual promiscuity, women, although symptomless, may have a firm basis for fearing that an illness has been transmitted to them by a sexual partner. In such cases, where there is a high risk of infection, to dismiss a woman's appeal for diagnosis and treatment may be to miss an opportunity to halt the spread of infection. The health education campaigns in Nigeria and elsewhere emphasise the need for safe sex and to seek diagnosis and treatment if exposed to risk. That women may express the fear of infection in terms at odds with biomedical categories should not preclude their receiving attention from medical staff. In societies such as Nigeria where the folk and biomedical models are so divergent, a case can be made for health education campaigns to be directed not only at the general public

but also at health providers, so as to make them more aware of the need to be sensitive to the health beliefs of the communities which they serve.

CHAPTER SIX

CONTRACEPTION AND REPRODUCTIVE TRACT INFECTIONS

Introduction

There are a number of ways women can expose themselves to the risk of acquiring a reproductive tract infection. Sexual intercourse with an infected partner can lead to the direct transmission of a sexually transmitted RTI. However, sexual intercourse can also indirectly put women at risk of acquiring a RTI, for, in situations where services do not exist for safe hygienic childbirth or abortion, pregnancy may lead to outcomes that carry the risk of infection. These direct and indirect risks can be reduced by the use of contraception. Certain contraceptive methods, such as the condom, can markedly reduce the risk of directly acquiring a RTI through sexual intercourse. Moreover, contraception, by preventing unwanted pregnancies, can reduce the risk of exposure to procedures such as induced abortion which, particularly in low-resource settings, may carry a high risk of infection.

However, contraceptive use may not always be beneficial. Some methods of contraception, through their physiological effects, may actually increase the risk of acquiring a RTI or of suffering complications from an existing infection. The picture is further complicated by the fact that the uptake and continued use of contraception by women may be influenced by the level of RTIs in the community. For example, symptoms of RTI may be ascribed to contraceptive side-effects, resulting in discontinuation of the method. Should there be a high prevalence of RTIs and the complications of infection which compromise fertility, this may engender a fear of being unable to conceive and bear a healthy live birth, in turn inhibiting the uptake of fertility control methods.

This chapter presents an investigation into contraceptive knowledge, contraceptive use and the provision of family planning in Southwest Nigeria and Ado-Ekiti. The findings are discussed in relation to the prevalence of RTIs in the area and how existing services for the provision of contraception might be improved so as to reduce levels of RTI in the community.

Contraception and reproductive tract infections

As has been suggested in earlier chapters, at the community level RTIs may have a negative effect on the uptake and continued use of contraception. At the individual level the risk of acquiring a RTI may be increased or reduced according to the contraceptive method used. The risk of infection is affected not only by the method but

by the way in which it is provided. Such factors as whether the provider of contraception screens for contraindications before advising on methods; how methods are provided (for instance whether aseptic techniques are used in fitting IUDs); whether subsequent health checks are provided; provisions for the treatment of RTIs; and whether counselling is provided regarding safer sexual practices all may impact on the risk of infection.

When used consistently and correctly, male condoms are effective in preventing both bacterial and viral STDs without the threat of significant side-effects. The female condom has been shown in laboratory tests to be impermeable to HIV and in field tests to be effective in preventing the transmission of some common STDs (Elias and Heise, 1993). However, present costs make this method too expensive to be an option for women in developing countries. In-vitro studies show that contraceptive spermicides kill or inactivate most STD pathogens (Cates and Stone, 1992). The spermicide nonoxynol-9 has been shown in a number of clinical trials to reduce the sexual transmission of common bacterial STDs such as chlamydia and gonorrhoea. However, its ability to prevent infection with other RTIs, particularly viral infections, is less well established (Elias and Heise, 1993). Although in-vitro this spermicide has been shown to kill the HIV virus, there is evidence to suggest that with high doses or with frequent use nonoxynol-9, by causing inflammation of the vaginal mucosa, may actually increase the risk of HIV infection (Cates, Stewart and Trussell, 1992).

Diaphragms and contraceptive sponges provide some protection against bacterial STDs. The diaphragm is nearly always used with a spermicide. In three case-control studies, cervical gonorrhoea, hospitalisation for pelvic inflammatory disease and tubal infertility were in each case lowered by 50 per cent for women using the diaphragm with a spermicide (Cates and Stone, 1992). As Elias and Heise (1993) point out, although spermicides, the diaphragm and the contraceptive sponge have a lower theoretical effectiveness than the condom in preventing bacterial STD transmission, by virtue of being female-controlled they have a higher potential use-effectiveness. Strength is given to this argument by a study (Rosenburg *et al.*, 1992) which compared the rates of RTI among users of condoms, diaphragms and sponges as a means of contraception. After making adjustments for the possible confounding factors of race, age, partner exposure, symptoms and history of prior STD, it was shown that users of sponges and diaphragms had a lower risk of infection with gonorrhoea or trichomoniasis than condom users. However, concerns have been raised that combined mechanical and chemical barrier methods such as foam and condom and diaphragm and spermicide may have potentially harmful effects. They may alter the vaginal flora and increase the domination of anaerobic organisms, a condition associated with reproductive tract infections (Cates and Stone, 1992).

The majority of studies have found an increased risk of cervical infections with chlamydia among users of oral contraceptives compared with non-users. However, the influence of oral contraceptives on the upper genital tract appears to be beneficial. Studies from the US and Europe show that women who are using oral contraceptives are half as likely to be hospitalised for pelvic inflammatory disease as women who are sexually active but who do not use contraception (Cates and Stone, 1992). Although a number of studies have been conducted, there is as yet no consensus on the association, if any, between the use of oral contraceptives and the acquisition of HIV.

There remains controversy over the association between IUD use and upper genital tract infection. Studies in the 1970s found an increased risk of PID among IUD users; however, more recent investigations have shown this risk to be overestimated. A review of the World Health Organisations IUD clinical trial data (Farley *et al.*, 1992) shows that the overall rate of PID among 22,908 IUD insertions was 1.6 cases per 1,000 woman-years of use. After adjusting for confounding factors, the analysis showed that PID risk was more than six times higher in the 20 days after insertion than in the subsequent period which showed a low risk for up to eight years of follow-up. The authors argued that these findings indicate that PID among IUD users is most strongly related to the process of insertion and to the background risk of STD. Although by far the greatest risk is associated with insertion the possibility of continued low level risk beyond the period after insertion is of particular concern in communities where there is limited ability to identify women exposed to STDs.

In terms of preventing pregnancy, those methods which are most efficient, that is the hormonal methods, the pill, injectables and implants, offer no protection against RTIs (at least in the lower reproductive tract), whilst the IUD may in fact increase the risk of infection. Barrier methods[1] are less effective in preventing conception than hormonal methods, but they offer protection against RTIs. Thus, with current technology, women must choose between methods that are highly effective in preventing pregnancy but offer little protection against infection and methods that optimise protection against infection but are less reliable in pregnancy prevention. Alternatively, they may choose to rely on a combination of methods. The choice of methods available constitutes a problem for women who wish to become pregnant but who also want to protect themselves against RTIs. With present methods used for RTI prevention,, sperm are barred from entry into the lower or upper female reproductive tract, or are rendered non-functional by the action of chemicals, so preventing fertilisation of the ovum and precluding pregnancy. The need to develop an affordable, non-contraceptive, female-controlled method of RTI prevention is acute.

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[1] Barrier methods include spermicide, contraceptive sponge, diaphragm, female condom and male condom.

Government policy on family planning in Nigeria

Family planning services have been available in Nigeria since the late 1950s, first in Lagos and then in Ibadan (Hauser, 1973). However, levels of contraceptive use remained very low through the 1970s and early 1980s (Caldwell and Caldwell, 1988). An explicit concern of the Structural Adjustment Program is with the adverse consequences of high fertility and population growth (Oni and McCarthy, 1990), which are seen as barriers to the government's efforts to reverse the downward trend in the economy. In the mid 1980s, with the assistance of various international organisations, a number of projects were initiated to increase the population's knowledge of family planning and contraceptive methods and to initiate new methods of distribution for contraceptives. These included social marketing and market-based distribution projects (Sherris, Ravenholt and Blackburn, 1985; Lapido *et al.*, 1990).

The Ibadan Market-based Distribution Project was carried out between 1985 and 1988 and investigated the feasibility of contraceptive distribution using traders in the traditional markets to sell pills, condoms and foaming tablets (Lapido *et al.*, 1990). Community events, radio and TV talk shows publicised the project. Traders were trained in reproduction, contraception, oral rehydration therapy, first aid and the treatment of malaria and were trained to screen customers for contraindications for contraceptive use. After training, with their new title of 'project health agents', the traders were provided with oral contraceptives, condoms, spermicidal tablets, packets of oral rehydration salts, malaria treatments and supplies for first aid treatment of minor injuries. The contraceptives were sold at a fixed low price by the agents who received supplies free and kept 25 per cent of the fees charged. The project was found to be a successful way of using indigenous commercial systems to increase the availability of contraceptive supplies and the program was adopted and administered by the Ibadan municipal health agency as a component of its primary health care and family planning services.

Also undertaken in the period 1985-1988 were three projects in Ilorin, Kawara State, Enugu, Anambra State and Ibadan, Oyo State (Piotrow et al., 1990). These projects were among the first organised state information, education and communication (IEC) activities under the expanding Nigerian family planning program. Television was used to promote family planning and clinics in three cities. For example, in Ibadan, for six months family planning was promoted through television series and clinic advertisements. Family planning themes appeared in 26 episodes of a weekly 30-minute Yoruba drama program called *Koko Close* and through a weekly Yoruba magazine program, *Mulero,* which featured discussions and interviews relating to family planning and health topics. The main purpose of these projects was to inform people of the relatively new family planning services available and to encourage them to go to the clinics. The creation of new and additional services, the training of personnel and the

availability of contraceptive supplies coupled with the mass media education resulted in immediate and substantial increases in family planning acceptors in all three cities (Piotrow *et al.*, 1990).

In 1988 the Nigerian government approved a National Population Policy which sought to reduce population growth. A stated target is to:

> reduce the number of children a woman is likely to have in her lifetime, now over six, to four per woman by the year 2000, and reduce the present rate of population growth from 3.3 per cent per year to 2.5 per cent by 1995 and 2.0 per cent by the year 2000 (Federal Republic of Nigeria, 1988:14).

This policy recommends pursuing a number of strategies including: integrating family planning services into the Primary Health Care Program; providing necessary and adequate population information and education to young people; and establishing fertility regulation and management programs which make services and facilities accessible and affordable to couples and individuals who want to regulate their fertility. Although there was no accompanying national program, this policy led to the importation of large quantities of contraceptives which increased supplies to both the public sector health facilities and (directly and indirectly) to private sector retailers such as chemists and medical stores. This, accompanied by the activities of non-governmental agencies such as the United Nations Fund for Population Activities (UNFPA) and the International Planned Parenthood Federation (IPPF) through its Nigerian affiliate, the Planned Parenthood Federation of Nigeria (PPFN), has led to a widespread availability of contraceptives in areas such as Southwest Nigeria and an increasing legitimacy for the practice of family planning (Caldwell, Orubuloye and Caldwell, 1992).

Contraception in Southwest Nigeria

Data from the NDHS offers a source of information on knowledge of, levels of use of, and sources of contraception in the southwest region of Nigeria and Nigeria as a whole. The fact that the southwest region includes the major metropolitan area of Lagos means that a direct comparison cannot be made with Ado-Ekiti. However, the data do serve to place the Ado-Ekiti findings within a regional context. This is important given the regional variations in family planning initiatives and activities.

Knowledge of contraception

One of the preconditions for the use of contraceptive methods for the prevention of pregnancy or of RTI is a knowledge of specific methods and where they can be

obtained.[2] The Nigerian government and international organisations active in Nigeria have been using television, radio, printed media and music to educate people about family planning. However, despite these efforts, in the 1990 NDHS less than half of all currently married women interviewed (43.6 per cent) knew of one or more methods of family planning. This level of knowledge is an improvement over the NFS where only 24 per cent of currently married women reported that they had heard of any method. [3]

Table 6.1

Nigeria, southwest region: percentages of all women who know at least one modern* method of contraception by selected characteristics, NFS 1981-1982 and NDHS 1990.

Characteristic	Know a modern method								
	Southwest (all)			Southwest (urban)			Southwest (rural)		
	1	2	(2)/(1)	3	4	(4)/(3)	5	6	(5)/(6)
	1981	1990		1981	1990		1981	1990	
Age									
15-19	12.1	55.6	4.6	13.6	62.0	4.6	10.4	43.8	4.2
20-24	36.8	77.3	2.1	37.4	84.3	2.3	34.9	58.4	1.6
25-29	31.7	79.5	2.5	39.4	87.6	2.2	21.0	64.0	3.0
30-34	28.7	68.4	2.4	39.8	82.6	2.1	18.7	47.8	2.5
35-39	35.2	68.9	2.0	51.3	77.9	1.5	18.2	59.1	3.2
40-44	24.7	72.1	2.9	33.0	75.2	2.3	17.1	69.2	4.0
45-49	24.0	58.5	2.4	36.5	53.4	1.5	12.8	50.6	3.9
Residence									
Urban	33.5	77.9	2.3	33.5	77.9	2.3			
Rural	19.0	56.0	2.9				18.9	56.0	2.9
Education									
None	21.3	52.6	2.5	28.6	63.5	2.2	16.1	44.7	2.7
Primary	36.5	66.8	1.8	42.2	75.2	1.8	25.9	55.6	2.1
Secondary+	27.6	81.9	3.0	31.2	84.8	2.7	20.0	73.3	3.6
Total	26.9	69.3	2.6	33.5	77.9	2.3	18.9	56.0	2.9
No. of women	2027	2060		1102	978		925	806	

* Modern methods comprise pill, IUD, injection, vaginal methods (foaming tablets/diaphragm/foam/jelly), condom, female sterilization, and male sterilization.

Sources: Nigeria Fertility Survey data tape 1981, Nigeria Demographic and Health Survey data tape 1990.

The southwest region, in both surveys, showed higher levels of contraceptive knowledge than were found in other regions. In the NDHS 69.3 per cent of currently married women knew of a modern method, double the level in the northwest region (30

[2] It is possible to gauge women's knowledge of family planning methods using data from the NFS and the NDHS. However, it should be stressed that a woman's knowledge of a method for contraceptive purposes does not necessarily mean that she also has a knowledge of its use for RTI prevention.

[3] The NFS report includes abstinence as a method of contraception. This is excluded as a method in the following analyses and discussion of contraceptive knowledge and use.

per cent). From Table 6.1 it is clear that there was a substantial increase in the level of knowledge of modern contraceptives in the southwest in the period between 1981-82 and 1990. This increase was particularly large among rural women, younger women and those with secondary or higher education.

Levels of contraceptive use

Both the NFS and the NDHS asked respondents about ever and current use of contraception. Although it remained low, for Nigeria as a whole the level of ever use of family planning rose quite considerably in the years between the NFS (1981-2) and the NDHS (1990). The percentage of currently married women who had ever used family planning rose from 5.3 in the NFS to 14.0 in the NDHS. Ever use of modern methods[4] increased among currently married women from 2 per cent in 1981-82 to 8 per cent in 1990. The NFS reported only 1 per cent of currently married women aged 15-49 as currently using contraception. In the NDHS this had risen to 6 per cent.

Women in the southwest region are far more likely to use contraception than those in other regions. In the NDHS 14.3 per cent of currently married women in the southwest were currently using contraception, with 9.7 per cent using a modern method. This compares with 8.8 per cent (3.9 per cent modern) in the southeast and 2.0 per cent (1.3 per cent modern) in the northeast.

Table 6.2 shows the characteristics of current contraceptive users for Southwest Nigeria based on data from the NDHS. It is clear that, proportionately, sexually experienced, never married women had a higher level of current contraceptive use than currently married women. Women in urban areas were more likely to be using contraception than those in rural areas. In urban areas 18.8 per cent of currently married urban women were currently using a modern contraceptive method, but this fell to 8.3 per cent among currently married rural women. The disparity between urban and rural dwellers in current contraceptive use was far less acute among the sexually experienced never married, the figures being 48.5 per cent and 42.4 per cent respectively. As has been found worldwide (Cleland and Hobcraft, 1985), there was a positive association between formal education and contraceptive use. The difference in current contraceptive use between education groups was less for never married women than for currently married women.

Contraceptive use among the currently married is highest among women in their 30s and early 40s, and lowest among women age 15-19. This pattern is probably due to the fact that younger women are just starting their families while older women are more

[4] The pill, condoms, injections, IUD, vasectomy, sterilisation, diaphragm, foaming tablets and other spermicides are defined as modern methods.

likely to have completed their families and to want to stop child bearing. Among never married women, the percentage contracepting increases with increasing age.

Table 6.2
Percentages of currently married (CM) and sexually experienced never married (NM) women currently contracepting, by selected characteristics, Nigeria southwest region, 1990.

	NDHS				NDHS (urban)			
	CM		NM		CM		NM	
	N*	%	N*	%	N*	%	N*	%
Residence								
Urban	784	18.8	204	48.5		18.8		48.5
Rural	613	8.3	73	42.4				
Age								
15-19	40	7.0	114	40.3	19	#	77	40.2
20-24	228	12.7	122	50.0	150	15.3	98	53.0
25-29	300	14.0	39	56.4	190	13.1	27	55.0
30-34	288	15.9	0	0.0	173	23.1	0	0.0
35-39	226	15.0	0	0.0	111	26.1	0	0.0
40-44	184	18.4	0	0.0	86	23.2	0	0.0
45-49	129	8.5	1	0.0	56	16.0	0	0.0
Missing	2	#	1	#	0	0.0	0	0.0
Education								
None	533	5.0	6	#	214	9.3	5	#
Primary	447	13.6	49	44.8	261	16.4	26	50.0
Secondary	358	23.7	182	46.1	268	26.1	144	47.9
Higher	59	45.7	39	56.4	41	36.5	28	53.5
Missing	0	0.0	1	#	0	0.0	1	#
No. of women	1397		277		784		204	

N* indicates the total number in each category, the denominator for the calculated percentages shown.
cases equal less than 20

Source: Nigeria Demographic and Health Survey data tape 1990.

The level of current contraceptive use can be usefully examined in relation to women who are currently exposed to the risk of becoming pregnant. Women are here considered exposed to the risk of pregnancy if they are sexually active (that is, reported having sex in the past four weeks); are not pregnant; are not amenorrhoeic (that is, have menstruated since their last childbirth); and are not infecund. Currently married women are considered infecund if they have been married five or more years, have never used contraception and have had no child in the five years before the survey. Women married less than five years are considered fecund, as are those who have never married. This is a rather loose definition of infecundity; it may include some fecund women who have not had a birth because they are not sexually active or have had spontaneous abortions,

whilst some women in the less-than-5 years marriage and never-married groups may be infecund. Table 6.3 presents, using this definition, exposure to the risk of pregnancy for currently married and never married women and the levels of contraceptive use among those exposed. Of currently married women 25.6 per cent were exposed to the risk of pregnancy; this rose to 60.6 percent among the never-married. Of those currently married women exposed to the risk of pregnancy 35 per cent were currently contracepting, the corresponding figure for the never married women being 60.7 per cent. There was a considerable urban-rural difference in the extent to which exposed currently married women were contracepting. However, among the never married women the difference was negligible.

Table 6.3
Percentages of currently married and sexually experienced never married women exposed to the risk of pregnancy and percentages of exposed-to-risk women using contraception, Nigeria, southwest region, 1990

	Currently married			Never married		
	All	Urban	Rural	All	Urban	Rural
	N=1397	N=784	N=613	N=277	N=204	N=73
Exposed to risk of pregnancy	25.6	29.4	20.8	60.6	58.8	65.7
Exposed currently using contraception	35.0	41.5	23.4	60.7	61.0	58.3

Source: Nigeria Demographic and Health Survey data tape 1990.

In the NDHS, in Southwest Nigeria, 7.7 per cent of pregnant currently married women said that their current pregnancy was unplanned, and of those currently married women who had a birth in the last 12 months 12.5 per cent said that they would have preferred to have had the birth later or not at all. These figures are no doubt conservative and a minimum indication of the need for effective contraception among currently married women.

A large minority of never married women are at risk of pregnancy but are not using contraception. Of all never married women in the southwest, 47.6 per cent (49.7 per cent in the urban southwest) had ever had sexual intercourse. Of these women 40 per cent were sexually active but were not using contraception. If it is assumed that these unmarried women did not wish to have a premarital birth, there appears to be a large unmet need for contraception.[5] Should this need be met, the increase in

[5] Such a conclusion assumes that contraception is in all cases preferable to abortion. However, this may not be perceived to be the case by all women, and indeed it appears that here as in other cultures the distinction between contraception and abortion is not always the relevant one (Renne, 1993). The crucial distinction may be not between using a method before or after conception but between having or not having a birth. Thus the question of unmet need could be couched in terms of whether women's needs to safely avert an unwanted birth, whether by preventing conception or by terminating a pregnancy, are being fulfilled. The assessment of unmet need also assumes that women do not desire a premarital birth. This may not always be the case, and indeed some women may have a premarital birth in order to demonstrate their fertility.

contraceptive use would enable a reduction in pregnancies and in outcomes that might lead to RTIs, such as unhygienic birth practices and induced abortion. If accompanied by appropriate education and guidance it could also increase the number of women using methods effective in preventing RTIs.

Methods of contraception

Table 6.4 using data from the NDHS for the southwest region shows the percentage distributions of currently married and sexually experienced never married women by contraceptive method currently used. The contraceptive patterns of married women are markedly different from those of never married women. Married women tend to use more long-term methods such as the IUD and injection. In the region as a whole, currently married women were more than twice as likely as never married women to use the pill. Generally never married women were more likely to use condoms than married women; this is especially true of urban women. Half of all never married contraceptive users stated that they relied on the rhythm method. Although the sample size is very small, the figures suggest that the majority of non-married women in rural areas depend on the rhythm method for contraception.

Table 6.4
Per cent distributions of currently married (cm) and never married, sexually experienced (nm) women, by contraceptive method currently used, Nigeria, southwest region, 1990.

Data source	Contraceptive Methods										
	Pill	IUD	Foaming	Condom	Injection	Rhythm	Withdrawal	Female steriliztn	Other	Total	No. of women
NDHS cm	27	17	4	8	11	16	8	3	6	100	199
NDHS nm	12	2	5	9	4	55	10	0	3	100	129
NDHS (urban) cm	24	20	5	7	14	18	5	2	5	100	148
NDHS (urban) nm	13	2	6	12	5	49	9	0	4	100	99

Source: Nigeria Demographic and Health Survey data tape 1990.

Respondents in the NDHS were asked when in the menstrual cycle a woman had the greatest chance of becoming pregnant. Table 6.5 reveals that women who had used the rhythm method did have a greater knowledge of when a woman is more likely to conceive than those who had not; 32.4 per cent of married women who had used the rhythm method gave the 'correct' answer of the middle of the cycle, compared to 24.7 per cent of married women who had not used the method. Among never married women, 39.2 per cent of those who had used the rhythm method gave the correct answer, compared to 28.8 per cent of non-users. However, clearly a large proportion of women who claimed to have used the rhythm method did not understand the significance of the timing of intercourse in relation to the menstrual cycle.

In the southwest region, according to NDHS data, over 58 per cent of currently contracepting married women (60 per cent in urban areas) were using methods which are very effective in preventing pregnancy (the pill, IUD, injection and sterilisation). Of

all never married women, 18 per cent were using methods very effective in preventing pregnancy (20 per cent in urban areas). Only 12 per cent of currently contracepting married women were using a method that offered any protection against RTIs (condom, foaming tablet, diaphragm); 14 per cent of never married women in the region who were currently contracepting, rising to 18 per cent in urban areas, were using methods that provide some protection against RTIs.

Table 6.5
Percentage distributions of all, currently married and never married women, and of those in each category who had ever used the rhythm method (use rm), by knowledge of the fertile period, Nigeria, southwest region, 1990.

Perceived fertile period	All women		Currently married		Never married	
	Use rm		Use rm		Use rm	
During menstrual period	3.9	6.6	2.8	4.9	6.4	7.9
Right after period has ended	32.0	31.6	34.5	36.7	32.3	23.9
Middle of cycle	23.9	35.2	24.7	32.4	28.8	39.2
Jsut before period begins	4.7	3.8	4.6	2.1	6.3	6.2
At any time	12.1	15.9	13.1	17.6	9.0	14.3
Other	0.5	0.0	0.6	0.3	0.0	0.0
Don't know	22.7	6.5	19.6	6.1	16.8	7.6
Missing	0.2	0.4	0.2	0.0	0.3	0.8
Total	100	100	100	100	100	100
Number of women	2060	220	1397	117	277	95

Source: Nigeria Demographic and Health Survey data tape, 1990.

Many women who practise family planning are reliant on methods that require the male partner's participation or cooperation, such as the condom, vasectomy, withdrawal or the rhythm method. Studies have shown that men play an important role in decision making about family planning, by giving their wives permission to use contraceptives and by initiating the use of male-controlled methods such as the condom and withdrawal (Fayorsey, 1989). One study in Nigeria found that among married female students, one out of five women who were not using a contraceptive method said it was because of her husband's objection to its use. Table 6.4 shows that among women who reported themselves to be currently contracepting in the NDHS southwest region, 32 per cent of currently married women and 74 per cent of never married women were using methods that required male participation or cooperation. These figures were slightly lower for urban residents, 30 per cent of currently married women and 70 percent of never married women relied on these methods.

Methods used by women in Southwest Nigeria tend to be those that offer little protection against RTIs. Condoms and spermicidal foaming tablets are used to some extent, but the use of other barrier methods which offer some protection against RTIs, such as the diaphragm, is negligible. Many women, particularly those who have never been married, are reliant on methods which not only offer no protection against RTIs but also are not very effective in preventing pregnancy. The use of female-controlled

Sources of contraception

The source of contraceptive methods and the skill of the provider are important in relation to the prevention and identification of RTIs. They may influence the quality of the supplies and so also their effectiveness in preventing infection.[6] The source and type of provider may have an influence on the health risks associated with the use of a contraceptive method; for example, a poorly performed IUD insertion may put the client in danger of infection. The extent of counselling provided on appropriate methods and contraindications, medical screening and follow-up care are important factors in the prevention and identification of RTIs. All can vary widely according to source of the contraceptive and how it is provided.

Table 6.6 shows the percent distribution of current users of selected methods by source of supply for Nigeria.[7] There is a clear difference in the sources of supply of contraceptives between currently married and never married women. Overall, 59.6 per cent of currently married women obtained their contraceptives from government sources compared to 29.0 per cent of never married women. This obviously, in part, reflects the difference in method mix between the two groups. However, if the pill and the condom are examined, it is apparent that never married women were far more likely to use private sources, in particular pharmacies and patent medicine stores, than were currently married women.

Contraception in Ado-Ekiti

Knowledge of contraception

The people of Ado-Ekiti are exposed to information about contraception through music, TV, radio, newspapers and magazines. Indeed as one respondent remarked, 'There is hardly any evening you can listen to the TV and not see a program on family planning'.

Table 6.7 shows the percentage of sexually experienced women surveyed in Ado-Ekiti (see Table 3.1) who know a contraceptive method by method known. Data is presented on all women (which includes the 28 women who were widowed, divorced or separated), currently married and never married women. As shown in this table the level of knowledge of contraceptive methods found in Ado-Ekiti was high with over 90 per cent of all women knowing at least one modern method. The injection, pill and sterilisation were methods most commonly known among the currently married. Among

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[6] Storage of supplies is important. For example, condoms kept on the shelf for long periods and exposed to sunlight, temperature extremes and humidity may suffer deterioration (Free and Hutchings, 1990).

[7] The small numbers involved militate against looking at the reported source of contraception on anything geographically smaller than the national level. It should be noted that analysis is restricted to methods that actually require supplies and therefore total figures are for selected methods only.

Table 6.6

Per cent distribution of current users of selected contraceptive methods by most recent source of supply, currently married (cm) and sexually experienced never married (nm) women, Nigeria 1990.

SOURCE	CONTRACEPTIVE METHOD									
	Pill		IUD		Injection		Condom		Total*	
	Cm	Nm	Cm	Nm	Cm	Nm	Cm	Nm	Cm	Nm
Total government	41.6	22.8	90.0		68.6		33.4	9.5	59.6	29.0
Govt hospital	28.6	5.7	66.0		47.1		16.6	0.0	40.9	8.6
Govt health centre	8.3	8.6	20.3		13.7		8.4	9.5	13.1	7.3
Govt doctor	2.4	5.7	0.0		3.9		0.0	0.0	1.9	7.3
**PPFN	2.4	2.8	3.7		3.9		8.4	0.0	3.7	5.8
Total private	53.6	74.3	7.4		29.4		41.6	61.8	34.7	60.7
Private doctor	3.6	0.0	7.4		23.5		0.0	4.7	8.9	4.4
Pharmacy	23.8	25.8	0.0		0.0		12.5	14.3	10.8	17.3
Patent medicine	22.6	45.7	0.0		3.9		16.6	42.8	11.7	37.6
Work place	1.2	2.8	0.0		2.0		4.1	0.0	1.4	1.4
Market	2.4	0.0	0.0		0.0		8.4	0.0	1.9	0.0
Total other	4.7	2.8	2.6		2.0		25.0	28.6	5.6	10.2
Friends/Relatives	4.7	2.8	2.6		2.0		8.4	14.3	3.7	5.8
DK/Missing	0.0	0.0	0.0		0.0		16.6	14.3	1.9	4.4
Total	99.9	99.9	100.0		100.0		100.0	99.9	99.9	100.0
No. of users	84	35	54	[6]	51	[6]	24	21	213	69

* Users of foaming tablets and female sterilisation are excluded because there are fewer than 25 cases for each category.

**PPFN = Planned Parenthood Federation of Nigeria

Source: Nigeria Demographic and Health Survey data tape, 1990.

the never-married the condom was the most frequently cited method followed by rhythm and the pill. The IUD, diaphragm and traditional methods were not widely known among never-married women.

Table 6.7
Knowledge of contraceptive methods among sexually experienced women by method and marital status, Ado-Ekiti.

Method of contraception	Percentage of women know method		
	All women N=422	Currently married N=295	Never married N=99
Know any method	91.7	89.4	93.9
Know at least one modern method	90.2	88.4	91.9
Pill	77.0	78.0	75.8
IUD	54.5	61.4	36.4
Injection	75.5	79.7	63.6
Condom	71.3	68.5	83.8
Diaphragm	43.6	50.5	26.3
Foaming tablet	56.6	56.3	58.6
Sterilization	74.4	78.6	60.6
Rhythm	69.6	67.1	76.8
Withdrawal	62.0	60.7	65.7
Traditional	52.8	57.3	38.4

Source: Ado-Ekiti data tape 1992.

Although the level of knowledge of the existence of various contraceptive methods is high in Ado-Ekiti, many women hold doubts about their action and the effects they may have on their health. Some of the fears expressed seem to have achieved the status of urban myths whilst others may be based on the observed shortcomings of some contraceptive methods. In interviews with respondents, a number of women remarked of the IUD that it was unnatural to implant things into the private parts, that one could conceive whether or not the IUD was in place and that if one does conceive it is likely to be twins. Five women from different areas of town told the story of a woman they knew who gave birth with the baby holding the IUD in its hand. Other worries were that condoms could get dislodged and stuck inside the vagina, and once there could not be removed. Women said they were afraid lest the condom was lost inside the vagina. A respondent remarked of condoms:

> People often say it is dangerous. It may burst during intercourse if it [the condom] has expired. It is not good that it bursts into a woman. It is very dangerous.

This comment reflected a common fear that condoms were likely to be 'expired' or to leak. This fear may be well founded given the conditions of storage found in some pharmacies and particularly in patent medicine stores, and also suggests that there may be a lack of quality control. The abnormal or excessive menstruation associated with contraceptive injections was also raised as a matter of concern. As one woman put it: '...you will bleed and bleed; it may not stop until a huge amount of money is spent in a bid to cure it.' Some women also expressed a fear that the pill could 'dry you up', making the woman infertile.

The apparently quite widespread apprehension aroused by certain contraceptive methods may act as a deterrent to their adoption. Furthermore, such fears may increase the chance that should a woman suffer an illness, such as a RTI, whilst using a contraceptive method she will attribute her condition to the method. This is not to deny the reality of many side-effects associated with certain contraceptives, especially in situations where restrictions in the choice of method, or in the selection of varieties of a method,[8] may mean that women are using methods that are not appropriate to their individual needs. At times a woman's attribution of her condition to the method may not be misplaced. Women were asked in the Ado-Ekiti survey why they had discontinued the last contraceptive method they had used. Of the 75 women who replied, 16 (21.3 %.) said it was because of some sort of side-effect (see Table 6.8). Whether 'real' or perceived, these side-effects obviously play a not insignificant role in the discontinuation of contraceptive use.

[8] For example, the lack of contraceptive pills of different hormone dosage and mix.

Table 6.8
Reasons for discontinuing last contraceptive method used as reported by survey respondents, Ado-Ekiti.

Reasons for discontinuation	Number	%
Wished to become pregnant	27	36
End of relationship or discontinued sex	10	13
Disliked method	11	15
Partner disliked method	3	4
Method ineffective	6	8
Abnormal bleeding	9	12
Became fat	4	5
Discharge/pain in abdomen	3	4
Total	75	100

Source: Ado-Ekiti data tape 1992.

Levels of contraceptive use

An examination of data from Ado-Ekiti shows a somewhat lower level of contraceptive use than was found by the NDHS for urban residents of southwest region. This is to be expected given that Lagos is included in the regional urban figures. Thirty per cent of currently married women reported ever using contraception, while 13.8 per cent were currently using one or more methods. Forty-four per cent of sexually experienced never married women reported ever using contraception with 27 percent currently contracepting.

Table 6.9 shows the characteristics of current contraceptive users for Ado-Ekiti. The table shows figures for all women (including divorced, separated and widowed women), currently married women and sexually experienced never married women. The small number of sexually experienced never married makes interpretation of the data problematic and so no inferences are drawn from these figures. As was found for southwest Nigeria (see Table 6.2) there is a positive association between formal education and contraceptive use for currently married women. Contraceptive use among the currently married is highest among women in their late thirties and early forties, this pattern is similar to that found in the NDHS. For all women the highest levels of use are found in very young women and those in their late thirties.

Table 6.9
Percentages of all, currently married and never married women currently contracepting by age and education, Ado-Ekiti 1992.

	All	women	Currently	married	Never	married
	N	%	N	%	N	%
Age						
17-19	46	19.5	1	0.0	24	33.3
20-24	112	17.8	41	12.1	4	27.7
25-29	99	16.1	75	13.3	9	44.4
30-34	65	10.7	62	11.2	1	0.0
35-39	57	19.2	49	22.4	1	0.0
40-44	37	13.5	36	13.8	0	0.0
45-49	39	10.2	32	9.3	0	0.0
Education						
None	59	5.0	48	4.1	1	0.0
Primary	124	7.2	106	8.4	7	0.0
Secondary	214	20.0	112	16.0	67	32.8
Higher	57	28.0	29	37.9	24	20.8
Missing	1	0.0	1	0.0	0	0.0
Total women	455	15.8	296	13.8	99	27.0

Source: Ado-Ekiti data tape 1992.

Methods of contraception

Table 6.10 shows the percentage distributions of all, currently married and sexually experienced never married women who were currently contracepting by contraceptive method currently used. It should be noted that the number of never married women currently contracepting was very small, 27, and therefore the figures must be treated with caution. In Ado-Ekiti over 48 per cent of currently married contracepting women were using methods which are very effective in preventing pregnancy (pill, IUD, and injection). This level of use is somewhat lower than that found in the NDHS were it was around 60 per cent. Whilst the pill is a popular method for currently married women in Ado-Ekiti the IUD is considerably less widely used and injection very little used. No women reported using female sterilisation. The NDHS also found it to be relatively rare.

Table 6.10
Percentage distributions of all, currently married and never married women who were currently contracepting by contraceptive method currently used. Ado-Ekiti 1992.

	All women	Currently married	Never married
	N=72	N=41	N=27
Method			
Pill	23.6	34.1	3.7
IUD	8.3	12.1	0.0
Foaming tablet	15.2	9.7	25.9
Condom	6.9	2.4	14.8
Injection	1.3	2.4	0.0
Rhythm	29.1	26.8	37.0
Withdrawal	6.9	7.3	3.7
Diaphragm	1.3	2.4	0.0
Other	6.9	2.4	14.8
Total	100.0	100.0	100.0

Source: Ado-Ekiti data tape 1992.

Fourteen per cent of currently contracepting married women were using a method that offered any protection against RTIs (condom, foaming tablet, diaphragm). This was slightly higher than in the NDHS. In Ado-Ekiti the use of condoms is low but foaming tablets is locally popular with 10 percent of married women and a quarter of never married women choosing them as a method. During the course of the Ado-Ekiti study respondents not infrequently would ask the interviewers for advice on what methods of contraception they could use without their husbands' knowledge. Thirty-six per cent of currently married women were using methods that require male participation or co-operation (condom, rhythm, withdrawal) this is comparable to the 32 per cent found in the NDHS. Fifty-five percent of never married women used such methods. This is rather less than that found in the NDHS. This could be an artefact arising from the small sample size or reflect a local preference for the foaming tablet as method of choice. It would appear that, possibly apart from foaming tablets, women in Ado-Ekiti, as in the rest of Southwest Nigeria, tend to use methods which offer little protection against RTIs and many women are still reliant on methods that are not very effective in preventing pregnancy.

Sources of contraception

Questions relating to sources of contraception were not included in the Ado-Ekiti survey. However, a number of observations were made regarding this subject. In Ado-Ekiti contraceptive methods are available from the Nigerian Family Planning Association family planning clinic as well as from family planning clinics held at the Ado-Ekiti State Specialist Hospital and the local government-run maternity and health clinics. Family planning services are also provided by the Ondo State University Health Centre. Family planning methods are available from private doctors and clinics and, in addition, there are at least eight pharmacies and 12 patent medicine stores which sell contraceptives. The government clinics supply all methods except the diaphragm and sterilisation. Of eight pharmacies and 12 patent medicine stores identified as selling contraceptives in Ado-Ekiti (Caldwell, Orubuloye and Caldwell, 1992) all supplied pills and condoms and nearly all sold spermicidal tablets or jellies. Half the pharmacies and medical stores also sold injectables, which are commonly taken to a nurse to be administered.

Nigerian family planning clinics will now provide men and women with contraceptives regardless of marital status, but the staff of the clinics in Ado-Ekiti agreed that their clientele continued to be mainly married women. Single women and men prefer to go to the pharmacies or patent medicine stores. Some married women also prefer to go to these private outlets for a number of reasons: the woman and her husband may be resuming sexual relations soon after the birth of their last child; she may be a grandmother or deemed too old by Nigerian mores for continued sexual activity; or

the woman may not want her husband to know she is practising contraception (Caldwell, Orubuloye and Caldwell, 1992). That private sources of contraception in Ado-Ekiti are so popular despite being three to five times as expensive as government sources indicates that they are fulfilling a need not met by the government services. Parts of this need are no doubt privacy, anonymity and ease of access.

CHAPTER SEVEN

INDUCED ABORTION AND REPRODUCTIVE TRACT INFECTIONS

Introduction

This chapter examines one of the potential modes of acquiring a RTI which could be prevented through eliminating unwanted pregnancies, induced abortion. Drawing on published data an examination is made of the reported levels of induced abortion in Nigeria and the characteristics of women who chose to abort. Then, using data from Ado-Ekiti, an investigation is made into the level of induced abortion in the community, the methods used to terminate pregnancies, and reported postabortal complications and their treatment.

Induced abortion and reproductive tract infections

Induced abortion, when not carried out in hygienic conditions by trained personnel, can carry a considerable risk of infection. Infections of the reproductive tract are more likely to occur after childbirth or abortion because micro-organisms ascend more easily through a cervix that is dilated. The organisms causing the infection may spread from a cervical infection such as chlamydia or be introduced by dirty hands or instruments. Alternatively, organisms which occur normally in the anus or vagina may be displaced into or higher up the reproductive tract, leading to infection. In induced and spontaneous abortions there is also the possibility of retained products of conception which may promote intrauterine bacterial growth.

The impact an induced abortion will have on a woman's health is related to the method used to achieve it and the stage of pregnancy at which it is performed. Non-medical abortion techniques include introducing an object such as a twig or catheter into the uterus and using abortifacients either orally or by insertion into the genital tract. These procedures may result in cervical laceration, uterine and intestinal perforation and peritonitis, haemorrhage, localised infection and shock. Medical procedures used to terminate a pregnancy include menstrual regulation, dilation and curettage, vacuum aspiration, dilation and evacuation and, rarely, hysterotomy and hysterectomy. All procedures requiring dilation of the cervix carry the risk of trauma to the cervix; the greater the period of gestation the wider the cervical diameter must be to remove the uterine contents effectively, and the greater the risk of cervical damage. One of the safest abortion procedures is suction curettage (Henshaw, 1990). In many developing countries where abortion is illegal there is neither the trained personnel nor equipment

for this procedure, and often procedures which carry a higher risk of damage to the cervix such as dilation and curettage are more widely used.

The stage of pregnancy at which an abortion is performed also affects the risk of complications. The risk of morbidity and mortality rises with increasing gestation. A study in the United States looking at 1981-1985 data found that deaths per 100,000 legal abortions rise from 0.2 at eight or fewer weeks since the last menstrual period to 12.7 at 21 weeks or more (Henshaw, 1990). The threat of postabortal haemorrhage and infection to a woman's health is greatly increased if she is already suffering from malnourishment or chronic anaemia, as is common among women in developing countries.

Sexually transmitted pathogens constitute an important cause of post-abortion sepsis. Women who have a gonorrhoeal or chlamydial infection of the cervix have at least a threefold higher risk of endometritis following induced abortion performed under hygienic conditions than women without such an existing infection (Burkman *et al.*, 1976; Westergaard, Philipsen and Scheibel, 1982; Osser and Persson, 1984). Such risks are greatly increased where abortions are performed in unsanitary conditions, as is often the case in Africa. Induced abortion and its complications can have a lasting effect on a woman's health. For example, there is some evidence that foetal mortality and premature live births are more common among women who have experienced one or more induced abortions (Linn *et al.*, 1983; Park *et al.*, 1984).

Induced Abortion in Nigeria

Government policy toward abortion

Abortion is illegal in Nigeria except where it is carried out to save the woman's life. The criminal code may be used to convict a woman, whether or not she is with child or any person who brings about miscarriage using any means (Renne, 1993). Both the woman who seeks the abortion and the abortionist who provides it are liable to a maximum sentence of 14 years imprisonment, although this is seldom enforced and where prosecutions do take place convictions are rare and the sentences often light (Nnatu, 1988; Okagbue, 1990). The provision that allows abortion to be carried out to save a woman's life is interpreted very liberally. The ambiguity surrounding a delayed period, when pregnancy is difficult or impossible to prove, offers an effective and politically acceptable way to offer menstrual regulation services as a health measure, and there are reports of menstrual regulation being used to treat contraceptives failures at University College Hospital in Ibadan as long ago as the mid-1970s (Ojo and Ladipo, 1981). More recently, in 1987, the faculties at some national teaching hospitals began to train medical residents in manual vacuum aspiration for treatment of incomplete and septic abortion (MacLaurin, Hord and Wolf, 1991).

Since 1981 there have been a number of proposals to legalise abortion. The Federal Minister of Health, Professor Ransome-Kuti, declared his support of the legalisation of abortion which, he argued, would reduce the toll of maternal mortality. In 1991 he announced that a new proposal on abortion was being formulated by the Federal Government. The Termination of Unsafe Pregnancy (and Other Related Matters) Decree would allow abortion on a number of grounds: contraceptive failure; congenital malformation or medical disability of the unborn child; medical and social complications; pregnancy resulting from rape; pregnancy of minors, idiots, imbeciles, the mentally retarded, the physically handicapped and paupers; pregnancy at advanced age; and pregnancy of a mother who has had more than four deliveries. The legalisation of abortion has been the subject of heated debate between religious leaders, health and family planning professionals and women's groups, and has received considerable coverage in the popular press. In March 1993 it appeared that the pro-life and religious lobbies were winning ground, with President Babandiga delaying the scheduled signing of the decree (Jimoh, 1993). To date the arguments for and against legalisation continue unabated.

Measurement of Induced Abortion

Reliable data on illegal abortions in developing countries are rare. This arises both from a heavy dependency on health services data and from the often encountered reluctance of women to acknowledge an induced abortion. The degree of underreporting is dependent on the legality of induced abortions, the degree to which laws are enforced and the social and cultural attitudes towards abortion obtaining in the society (Figa-Talamanca *et al.*, 1986).

Hospital admissions records are the major source of information about abortion in Africa. They generally report the number of women admitted for treatment of abortion complications and the number of subsequent deaths in a given period. These records may suggest only the minimum incidence of abortion complications and mortality associated with induced abortion, as hospitalised women represent only a proportion of all women obtaining abortions. What proportion is difficult to estimate. Only some of the cases, probably the most severe, find their way to hospital, while others are treated by other health care services or at home. The use of hospital records for determining the incidence of induced abortion is further complicated by the fact that they rarely differentiate between induced and spontaneous abortions. When they do, illegal abortions may be undercounted, as some women and attending physicians conceal induced abortions, calling them spontaneous.

The other main source of data on the incidence of induced abortion is population surveys. Here the investigator establishes the incidence of induced abortion based on

self-reporting by respondents. This can be problematic. The respondent may unintentionally misreport the occurrence of an abortion. For example, a spontaneous abortion that occurs after an unsuccessful attempt to interrupt a pregnancy may be incorrectly labelled as an induced abortion. Or women may 'terminate' suspected pregnancies, even though they were never really pregnant (Van der Vlugt and Piotrow, 1974). Of course, women may also intentionally fail to report an induced abortion and the reporting of induced abortion may vary systematically across subgroups of women. For example, there may be differences in reporting according to the age or educational level of the respondent.

The incidence of abortion and the characteristics of abortion-seekers in Nigeria

Health services studies from Nigeria generally report the number of women admitted for treatment of abortion complications and their subsequent rates of mortality.[1] Abortion-related admissions (spontaneous and induced abortion) constituted 8 per cent of hospital admissions to Lagos Island Maternity Hospital between 1970 and 1972 (Liskin, 1980). The percentages of maternal deaths attributable to the complications of induced abortion in various hospital studies were 8.3 in Ibadan (Konje, Odukoya and Ladipo, 1990), 12.5 in Ile Ife (Ogunniyi, Makinde and Dare, 1990) and 22.4 in Benin (Unuigbe, Oransaye and Orhue, 1988).

There have been few population-based studies of abortion in Nigeria. The 1981 WFS did include questions on pregnancy loss. However, the figures suggest considerable underreporting of both spontaneous and induced abortion (Casterline, 1989). Only 0.5 per cent of pregnancies were reported as terminating in an induced abortion. These figures compare with reported pregnancy losses due to induced abortion of 1.8 per cent in Cameroon and 0.8 per cent in Cote d'Ivoire. Expressed as pregnancy losses per 100 woman, 1.8 per cent of ever married women aged 30 or over in Nigeria reported a pregnancy loss due to induced abortion. This figure again is low compared to pregnancy losses due to induced abortion per 100 women aged 30 and over of 6.8 per cent in Cameroon and 2.3 per cent in Cote d'Ivoire (Casterline, 1989). A community survey in Lagos in 1987 showed the incidence of induced abortion to be 5.6 per cent (Olukoya, 1987), a figure that corresponds well to the 5 per cent incidence level estimated in a previous community study in Lagos (Makinwa-Adebusoye, Nichols and Kelly, 1982).

In contrast to many developing countries where abortion is most common among older women with several living children, in Africa married and particularly unmarried, women rely on abortion to terminate their first pregnancies (Liskin, 1980). In Nigeria there is a high use of abortion by adolescent girls (Nichols *et al.*, 1986, Caldwell

[1] Not all studies differentiate between spontaneous and induced abortion.

and Caldwell, 1987a). Abortion may also be used by married women who become pregnant by extramarital partners or who become pregnant too soon after their last birth.

For adolescent females early pregnancy carries serious implications. The medical implications of early childbirth are well documented (Liskin, 1985; Senderowitz and Paxman, 1985); in addition there are important social and educational consequences. Most schools in Nigeria do not permit pregnant girls to remain enrolled and so they must postpone or abandon their education. Faced with such a choice many girls decide to abort so that they can finish school. Oransaye and Odiase (1983) reported on the attitudes toward abortion and contraception among secondary school girls in Benin City. They revealed that 30.2 per cent of 530 respondents admitted to having had an induced abortion. It should be noted that since in-school samples exclude women who become pregnant and elect to leave school and carry the pregnancy to term, they incorporate a degree of self-selection. Nichols *et al.* (1986) conducted a survey of 841 never married young people aged 14-25 who were working or attending school in the Ibadan area. It was found that among never married women who had ever had sexual relations a large proportion had been pregnant.[2] Of those women who had been pregnant, 34.6 per cent of secondary school students, 38.3 per cent of university students and 55.4 per cent of non-students had had an induced abortion.

Induced abortion in Ado-Ekiti

Cultural aspects of abortion

As discussed in Chapter Five, in the Yoruba culture as in many others (WHO Task Force, 1981), women view menstruation as a physiological occurrence indicative of general good health. Its absence indicates an upset in the balance of the body and may be a sign of, or can lead to, serious illness. The notion of 'removing female irregularity' and 'bringing down the period' is widespread in many cultures (Mohr, 1978; Newman, 1985) and a wide range of emmenagogues (menstrual inducers) has been found in studies of fertility regulating methods throughout the world (Dixon-Mueller, 1988). The term *f'onu* or 'washing the womb' is commonly used in Ado-Ekiti and the surrounding area to refer to dilatation and curettage (D&C). However, the origin of this expression and its fundamental usage is to describe any procedure to remove impurities from the womb. Thus the term is also used to describe procedures undertaken to rid the womb of substances which may lead to infertility, such as worms or 'black blood', and those used to remove retained products of conception.

How pregnancy is determined and when life is perceived to begin differs between cultures. It is these perceptions which dictate whether an action is perceived as being

[2] Of 127 sexually active secondary school students 56 (44.1 per cent) had been pregnant; of 253 sexually active university students 102 (40.3 per cent) had been pregnant; and of 74 sexually active non-students 50 (67.6 per cent) had been pregnant.

carried out to achieve a healthy state or as a deliberate act to avert a birth. For instance, among rural Chinese in Malaysia 'an abortion can take place only after the foetus is formed, which in local beliefs may take up to 2 months after a missed menses' (Ngin, 1985:35). Evidence from rural Ekiti (Renne, 1993) suggests that for many villagers, the child is only considered alive after the fourth month. The majority of women who acknowledged having an induced abortion in Renne's study had it in the first three months of pregnancy. Renne argues that not only was this to avoid the pregnancy's exposure in the community and the recognised increased danger to health with increased gestation, but also it reflected the belief that before this time the foetus was not a 'real child'.

The armoury of methods possessed by practitioners of traditional Yoruba medicine for menstrual regulation and the avoidance of unwanted births indicates that it is definitely not a new phenomenon and that, as in other cultures, such methods have long been widely known among the Ekiti Yoruba.

Review of hospital records

As part of the preliminary investigations made before the Ado-Ekiti survey was conducted, a review was made of the out-patients department records at Ado-Ekiti State Specialist Hospital (AESH) for the period July 1988 to July 1990. All non-booked patients who present at the hospital are registered and examined at the Out-patients Department before being referred to other departments within the hospital or to other institutions. A total of 22 women were recorded as attending the Out-patients Department for complications associated with induced abortion in the two years for which records were examined.[3] Most were in the age range 16-24 with only two older women (30 and 32 years of age). Twelve were school girls or students and three were apprentices. All 22 women were suffering from septic, incomplete abortion. The methods of induced abortion procured before attending the hospital were as follows:

Method	Provider	Number
D&C	Private doctor	11
Not stated	Private doctor	5
Not stated	Nurse	1
Herbal medicine	Traditional healer	2
Patent medicine	Self	3

[3] Only women whose medical records reported an induced or 'criminal' abortion were categorized as having received an induced abortion. However, it should be noted that there were a number of records of 'incomplete abortion' where it was not specified whether the abortion had been spontaneous or induced. Where any doubt existed as to the nature of the abortion it was categorized as spontaneous.

The out-patient records showed that two per cent of all women aged 15-49 registering at the Out-patient Department, did so for abortion-related conditions (this includes both spontaneous and induced abortions). The lack of data on abortion-related conditions as a proportion of hospital admissions makes this finding difficult to compare with findings from other studies. However, it would suggest that the number of women attending AESH with abortion complications was low. There are several possible explanations: the incidence of induced abortion in the community was low; the number of induced abortions leading to medical complications was low; complications arising from induced abortion were misreported by patients; complications associated with induced abortion were misreported by hospital staff; women suffering from postabortal complications turned to other sources of health care. By examining the evidence from the population survey it is possible to get a clearer picture of the level of abortion in Ado-Ekiti than is offered by medical records.

Induced abortion as reported in the Ado-Ekiti survey

Respondents in the population survey were asked if they had ever had something done, either by a doctor or some other way to end a pregnancy early. Seventy-five women (16.4 per cent of all respondents, 17.7 per cent of respondents who had ever had sexual intercourse) reported ever having had an induced abortion. The percentage of reported pregnancies (including current pregnancies) resulting in an induced abortion was 7.7. The distribution of women by number of induced abortions experienced is shown in Table 7.1. It is important to note that nearly 35 per cent of women who reported ever having had an induced abortion had had more than one abortion.

Table 7.1
Number of abortions reported by respondents who had ever had an induced abortion, Ado-Ekiti, 1991.

No. of abortions	No. of women	Per cent
1	49	65
2	20	27
3	5	7
4	1	1
Total	75	100

Source: Ado-Ekiti data tape 1992

Table 7.2 shows the relationships between characteristics of women and the reporting of ever having had an induced abortion, excluding 33 women who had never had sexual intercourse and 3 women who did not respond to the question on abortion. All differences presented in the table were found to be statistically significant ($p<0.01$). There is a notable difference in the reported incidence of induced abortion by education. Ten per cent of women with no education or primary education reported ever having had an induced abortion compared with 23 per cent of women with secondary or higher education. This is consistent with previously cited studies in Nigeria which indicate that young women terminate pregnancies in order to stay at school and complete their educations. Twenty-eight per cent of women who first had sexual intercourse aged 17 or younger reported ever having had an induced abortion compared with nine per cent of women who reported first having coitus at age 21 or older. The proportion of women reporting ever having had an induced abortion increased with the number of sexual partners ever had. A third of contraceptive users reported ever having had an induced abortion, compared with 11 percent of never-users. An obvious question that springs to mind is whether women reporting an induced abortion and having ever-used contraception began their contraceptive use before or after their abortions. Unfortunately the present data only permit an examination of the pattern of contraceptive use over the two years before the survey, which is insufficient to answer this important question.

Table 7.2
Relationships between characteristics of ever sexually active women and whether or not reported ever having had an induced abortion, Ado-Ekiti 1991.

Characteristic	Abortion status				Total	
	Ever had		Never had			
	N	%	N	%	N	%
Education***						
None	1	2) 10	59	98) 90	60	100
Primary	18	15)	103	85)	121	100
Secondary	50	26) 23	141	74) 77	191	100
Secondary+	6	13)	41	87)	47	100
Age 1st sexual intercourse***						
>15	3	18) 28	14	82) 72	17	100
15-17	35	30)	82	70)	117	100
18-20	30	14	179	86	209	100
21-23	4	1)	41	99) 91	45	100
24+	1	4) 9	21	96)	22	100
Unknown	2	22	7	78	9	100
Number of partners ever**						
1	11	6	158	94	169	100
2	25	19	107	81	132	100
3+	39	34	76	66	115	100
Not reported	0	0	3	100	3	100
Ever use contraception**						
Yes	43	33	89	67	132	100
No	32	11	255	89	287	100
Total	75	18	344	82	419	100

** Significance p<0.01
*** Significance p<0.001
Source: Ado-Ekiti data tape 1992.

Data on the characteristics of women when they first chose to abort are presented in Table 7.3. Of the 75 women reporting abortion 5 did not know the date of their first abortion and so were excluded from the table. It is evident that the majority of women were between the ages of 15 and 24 and were unmarried when they had their first abortion. Over 70 per cent of the respondents had not had a live birth before their first abortion. Of those who had a previous live birth only 10 per cent were unmarried at the time of their first abortion.

Table 7.3
Characteristics of women at first abortion, Ado-Ekiti survey.

Characteristic	Per cent*	Number Total=70
Age (years)		
<15	1	1
15-19	39	27
20-24	43	30
25-29	6	4
30-34	6	4
35+	6	4
Marital status at first abortion		
Unmarried	71	50
Married	29	20
Number of children ever born at first abortion		
0	71	50
1	7	5
2 to 4	11	8
5+	10	7

* Percentages do not total 100 due to rounding
Source: Ado-Ekiti data tape 1992.

Women were asked further details of their last abortion. This included a question on how many months pregnant they were when they last ended a pregnancy. Seventy-three of the 75 women reported ending their pregnancy at a pregnancy duration of less than four months. Although the reporting of gestational age is problematic and the reported ages may well not be biomedically accurate they reflect the perceived durations of the pregnancies and are in keeping with the idea that before the fourth month pregnancies are fragile and easier to 'shake down' (Renne, 1993). There is also, of course the possibility that respondents were unwilling to report abortion of pregnancies of longer than three months duration, which may be deemed to be less morally acceptable.

The Ado-Ekiti survey suggests a much higher incidence of induced abortion than was indicated by the examination of local hospital medical records. The characteristics of women seeking abortion in Ado-Ekiti are in keeping with past studies which have shown that African women tend to turn to abortion early in their reproductive lives, that abortions are often used to terminate first pregnancies, especially by unmarried women,

and that most take place in the first trimester. Over a third of all women who reported having had an induced abortion had had more than one. An investigation into whether these women use induced abortion as opposed to contraception as a preferred means of averting an unwanted birth, and if so, what the factors are that make abortion the preferable option, would prove a valuable line of further research. When women obtain an induced abortion it provides an important opportunity for the her to receive counselling on uptake contraception at a time when she is likely to be more than usually receptive to the idea. The extent to which private health providers give this sort of counselling is not known.

Methods of abortion

A number of methods of induced abortion have been described as being in use in Nigeria. Abortifacients used include traditional medicines prepared by local herbalists, patent medicines, local gin, lime orange and effervescent, and lemony or salty drinks. Olusanya (1969) reports the use of potash and lime juice, with the addition of laundry blue and local gin for pregnancies of longer duration. Caldwell and Caldwell (1987b) report the use in Ibadan of 'Ladies' Occasional Pills' which have ergot as their active ingredient. Respondents interviewed in Ado-Ekiti cited medicines such as codeine (taken with or without local gin), ergometrine, Andrews' liver salts, Menstrogen and Dr Bonjean's tablets as being effective abortifacients. Traditional medicines may be drunk or inserted as pellets into the vagina. A respondent in the Ado-Ekiti survey (trader, no formal education, aged 42) described her experience with a traditional method of abortion:

> R: Yes, one may visit a traditional healer. I have done this before. When I became pregnant after six months of delivery I did not want other co-wives to know and I did not have any knowledge of hospital then. Hence I went to a traditional healer and told him of my predicament. He gave me one roundish object to put in my vagina which will cause the pregnancy to come down the following day. When I introduced this into my vagina the result was immediate but I had to go to the hospital in the long run because of complications.
>
> I: What would have happened if you had not gone to the hospital?
>
> R: It would have made it impossible for me to conceive again or even destroy the womb utterly.
>
> I: What would have caused the utter destruction of the womb?
>
> R: The roundish object introduced into the womb of course. This is quite unhygienic. Germs may be introduced into the vagina through it. You know *ato* (sperm) is introduced into a woman via two tracks. If these two are blocked doctors cannot cure it unless an operation is carried out. The traditional healers are the people who often cause a delay in conception.

Dilation and curettage (D&C) is a commonly known and widely used method of abortion. Respondents in Ado-Ekiti also mentioned vacuum evacuation as a possible although less frequently used, method. These procedures may be carried out in private hospitals and clinics or by 'quacks', who are not qualified as doctors but have some training in the medical sciences, as perhaps nurses or laboratory workers. Some of these 'quacks' may have even more tenuous connections with Western medicine, such as through being ward orderlies or hospital porters. These people perform abortion procedures in their own or the client's home and may be seriously ill-equipped in terms of technical competence, medicines and equipment.

In the survey women were asked where they had procured their last abortion and the method used to carry it out. Table 7.4 shows the source of the last abortion for women who reported having their last abortion in the five years before the survey. Where the first attempt at abortion was unsuccessful the source of the second attempted abortion is also shown. While the majority of women reported going to a private doctor for their abortion, some tried to self-abort and others went to traditional healers and other sources. The table indicates that attempts at self-abortion were often unsuccessful and were followed by visits to a private doctor, traditional or other source where the abortion was eventually procured.

Table 7.4
Sources of abortion by the sequence of attempts for the last successful abortion in the five years before the survey, Ado-Ekiti 1991.

First Attempt		Second Attempt			
		Self	Trad.	Private	Other
Self	16		2*	7	2
Traditional healer	3			1	
Private doctor	27			2	
Other	5			2	

* One respondent was unsuccessful on this second attempt and underwent a D&C at a private hospital

Source: Ado-Ekiti data tape 1992

Over thirty per cent of women who had their last abortion in the five years before the survey first tried to avert the birth by themselves. A further 15 per cent turned for assistance to traditional healers or other non-biomedically trained persons. For 58 per cent of these women the first attempt at abortion was unsuccessful and had to be followed by a second and, in one case, a third attempt. The delay associated with these multiple attempts and the increased health risks to the aborting mother associated with lengthening gestation are of particular concern.

Table 7.5 shows the method used for each attempt. The most frequently used method was D&C. Patent medicine and traditional medicines were also reported as being used. In cases where the first attempt at abortion was unsuccessful most women reported using D&C at the second attempt. In two cases the first D&C was unsuccessful and had to be repeated at considerable cost and discomfort to the women involved.

Table 7.5
Methods of abortion used by sequence of attempts for the last successful abortion in the five years before the survey, Ado-Ekiti 1991 (n=51).

Method	Attempt		
	First	Second	Third
D&C	28	13	1
Evacuation	1		
Herb/traditional medicine	9	2	
Alcohol/Patent Medicine	10		
Drug (unknown)	3		
Massage		1	

Source: Ado-Ekiti data tape 1992.

Respondents were further asked about whether they had suffered any of a number of conditions in the two weeks following their last abortions. These symptoms were:

a. Fever and shivering
b. Heavy bleeding with clots and pieces
c. Abnormal vaginal discharge
d. Severe lower abdominal pain

Of the 51 respondents who had their last abortion in the five years before the survey, 23 (45 per cent) reported having suffered from one or more of these conditions. Just under half of these women (11), reported seeking treatment for their complaint. Nine of the eleven women had been treated for their condition at a hospital (seven at a private hospital, two at a government hospital). The other two women of the eleven who sought treatment had turned to traditional healers for help. One of these women poignantly illustrated the dangers arising from abortion. At the age of 15 she found herself pregnant. She sought to abort the pregnancy using lime orange (a traditional method) and later Codeine and local gin, but these proved ineffective. Eventually when she was, by her own estimation, six months pregnant she went to a private hospital and had a D&C. For three weeks after the abortion she suffered 'terrible' pain and bleeding. Eventually she was forced to confess to her mother who took her to a *babalawo,* who successfully removed the 'placenta' (probably retained products of conception). The

woman, who is now 19 years old, has been unable to become pregnant since she married three years ago. She attributes her problems in conceiving to the complications associated with her induced abortion.

As Renne (1993) points out, the many stories about abortion found in the newspapers and magazines available in Ekiti tend to stress the health consequences of such terminations rather than the moral questions which induced abortion raises. It would appear that women are aware that induced abortions can be dangerous and many are able to relate tales of friends and relatives who have suffered ill-health because of them. The D&C is the most popular method of induced abortion in Ado-Ekiti. Vacuum evacuation, a method of menstrual regulation available in Nigeria which involves the extraction of the menses by vacuum aspiration of the uterine lining, was much less widely known or used. This method, which can be carried out by trained personnel on an out-patient basis in 5-10 minutes, can also be used in the early treatment of incomplete abortion (Dixon-Mueller, 1988). In Bangladesh it is performed within 2-4 weeks of a missed period (that is, 6-8 weeks since the last period) and up to six weeks if necessary. In Ado-Ekiti the frequent delay in seeking a professional abortion due to attempts at self-abortion would militate against the use of this method of early abortion. However, perhaps efforts to inform and educate women about menstrual regulation would increase interest in and demand for this simple procedure, which apparently has low complication rates (Dixon-Mueller, 1988).

CHAPTER EIGHT

THE UTILISATION OF MATERNITY CARE SERVICES IN THE PREVENTION AND TREATMENT OF REPRODUCTIVE TRACT INFECTIONS

Introduction

It was established in Chapter Four that, although at the lower end of the spectrum found in sub-Saharan Africa, the levels of RTI found among women in Southwest Nigeria are a matter for concern. For example, in the study community of Ado-Ekiti, one-quarter of antenatal clinic clients were found to have a sexually transmitted disease (STD). In subsequent chapters evidence was presented to show that conditions associated with RTIs and their sequelae are a matter of concern to women in Ado-Ekiti and that many of these infections are currently being treated inappropriately, increasing the risk of unresolved infections, complications and continued transmission. This raises the question of how appropriate services for the prevention, diagnosis and treatment of RTIs might be provided to alleviate this situation. One option to be considered is the introduction and integration of measures to address the problem of RTIs into existing services.

The emergence of AIDS and increasing evidence of the relationship between STD and HIV infection have focussed attention on the management of STDs. There has been a recognition of the need to increase the competence of community-based health services to deal more effectively with these infections. The World Health Organisation (WHO) has given priority to the development of methods and technologies that can be used at the primary health care level, by health units with little or no laboratory support, to provide effective treatment for people with STDs (and their partners). This initiative is complementary to the development of a more integrated approach to reproductive health care for women in developing countries, in that it increases the feasibility of introducing measures for the prevention and treatment of RTIs into existing primary health care programs such as the Safe Motherhood Initiative, maternal and child health (MCH) and family planning programs.

In Southwest Nigeria over 80 per cent of mothers have some contact with formal maternity care services before, during or after their delivery. These services provide an opportunity to reach a large number of sexually active women, in order to prevent and treat RTIs and to effectively intervene to improve pregnancy outcomes. There are a number of effective strategies for the control and prevention of RTIs which might be introduced into maternity care services. They include: limiting complications

through the early detection and treatment of RTIs; reduction of the risk of infection during delivery by making medically safe delivery available; reducing exposure to infection through health education and the promotion of condom use; and limiting further transmission through counselling and partner notification.

As in many countries in sub-Saharan Africa, per capita expenditure on health care in Nigeria is low. For example, in 1988 it was 0.6 US dollars. This compares with 602 US dollars in the UK. Government expenditure on health was a mere 0.2 per cent of total government expenditure in Nigeria for the same year (Piot and Rowley, 1992). Thus, many diagnostic and treatment procedures carried out routinely in developed countries are not financially feasible. Financial constraints and those arising from shortages of drugs, equipment, laboratory facilities and trained health care personnel may be compounded by shortcomings in the infrastructure of the health care system, such as inefficient or inappropriate supply channels. Recognising that there is unlikely to be any significant improvement in the funding of the health system in Nigeria in the foreseeable future, the challenge is to meet the reproductive health needs of the population through the imaginative use of limited resources.

This chapter investigates the current patterns of use of maternity care services in Southwest Nigeria and explores how interventions to tackle the problem of RTIs might be introduced into these services, with particular focus on the most widely used of services, antenatal care. The chapter draws on data from the NDHS, data and observations from the Ado-Ekiti study and insights from a reproductive health initiative piloted in Zambia.

Pregnancy, childbirth and reproductive tract infections

Unless she has a sexually transmitted disease, a women does not usually become infected during an uncomplicated vaginal delivery (Lettenmaier *et al.*, 1988). However, the chances of infection increase if labour and delivery are long or if the membranes rupture more than 24 hours before delivery. Frequent vaginal examinations, surgery, use of instruments during labour and delivery and the lack of sterile techniques also increase the risk of infection.

Postpartum infections are thought to be common in Africa because of the high incidence of obstetrical difficulties, such as prolonged or obstructed labour (Lettenmaier *et al.*, 1988). Female circumcision, depending on the extent of the excision, can cause severe scarring of the genitalia, increasing the risk of tearing during childbirth and of subsequent infection. Unsanitary conditions, unskilled birth attendants and the use of some traditional childbirth practices such as introducing herbs into the vagina to hasten delivery (Longo, 1964) also increase the risk of infection and trauma. A large study in northern Nigeria found that 8 per cent of women developed postpartum upper genital tract infections (Harrison and Rossiter, 1985). Women who survive these infections face

an increased risk of developing pelvic inflammatory disease, ectopic pregnancy, infertility and chronic pelvic pain.

Sexually transmitted diseases, particularly gonorrhoea and chlamydia, often give rise to postpartum infections. In a US study, women with chlamydial infections during pregnancy were two and a half times more likely to develop postpartum infections than women without chlamydial infections (Wager et al, 1980). A study in Kenya found that a gonococcal infection during pregnancy quadrupled the risk of postpartum upper genital tract infection. Chlamydial infection and labour lasting more than 12 hours also increased the risk of an ascending infection (Plummer *et al.*, 1987). The risk to a woman's health posed by a gonococcal infection may be increased if she is pregnant. There is some evidence that blood-borne spread of infection occurs more commonly in pregnant than in non-pregnant women. This spread gives rise to disseminated infection and involvement of joints and other systems (Rooney, 1992).

Infection with a STD during pregnancy threatens the health of the unborn child as well as that of the mother. Such infections can lead to foetal wastage (spontaneous abortion or stillbirth), low birthweight (premature delivery or intrauterine growth retardation) and congenital or perinatal infection (including potentially blinding eye infections, infant pneumonia and mental retardation). Table 8.1 shows estimates of the proportion of women infected with a STD who, if untreated, would experience an adverse outcome.

There do exist a number of relatively inexpensive and effective interventions to detect and treat RTIs in pregnancy, to reduce the risk of postpartum infection and to treat infants infected with RTIs. Antenatal screening and testing for maternal syphilis, ophthalmia neonatorum prophylaxis[1] at birth and the training of traditional birth attendants were included among five cost-effective interventions to reduce maternal and infant morbidity recommended by a WHO working group in 1988 (cited in Wasserheit and Holmes, 1992: 22). Wasserheit and Holmes (1992) have suggested a number of additional RTI interventions which would be complementary to existing maternal and child health programs. These include: the diagnosis and treatment of symptomatic upper and lower reproductive tract infections based on signs and symptoms; counselling about condoms, partner notification and RTI reduction; training health workers about RTIs; and the development of RTI management guidelines. These interventions and their potential implementation in Southwest Nigeria are discussed in some detail later in the chapter.

[1] Opthalmia neonatorum is a severe inflammation of the eye (specifically the conjunctiva) in the newborn. It arises from infection of the birth canal at the time of delivery. Gonorrhoea is responsible for a majority of cases.

Table 8.1
Percentages of pregnant women who experience adverse outcomes from RTIs.

Infection	Adverse Outcome (per cent)*		
	Fetal Wastage	Low birth weight or prematurity	Congenital or perinatal infection
Chlamydia	?rare	10 to 30	40 to 70
Gonorrhoea	?rare	11 to 25	30 to 68
Early syphilis	20 to 25	15 to 50	40 to 70
Primary genital herpes	7 to 54	30 to35	30 to 50
Bacterial vaginosis	?rare	10 to 25	Rare
Trichomoniasis	?rare	11 to 15	Rare
No RTI	4 to 10	2 to 12	NA

* The figures shown are summaries of results found in various studies

Source: Wasserheit and Holmes (1992: 16)

Patterns of utilisation of maternity care services in Southwest Nigeria

A first step in examining how maternity care services could be used in the prevention and treatment of RTIs is to examine what services are currently being offered, the extent to which these services are being utilised, and the characteristics of those who are using them. Evidence from the NDHS suggests that the use of hospital and clinic-based maternity care services is high among women in the southwest region of Nigeria. Seventy-six per cent of women who had a birth in the five years preceding the survey received a tetanus toxoid injection and 84 per cent had received antenatal care from a doctor, nurse or midwife. In studies of maternity care the coverage of antenatal care is typically found to be higher than that of delivery care (Adekunle *et al.*, 1990). This appears be true of the southwest region, where only 62 per cent of women were attended by a doctor, nurse or midwife at their last delivery. Although over 60 per cent of women had their last birth at a hospital or health centre/clinic, more than a quarter of women (27.1 per cent) delivered their last child at home. The lower level of utilisation of formal childbirth services may be due to a combination of factors, including a need for privacy, emotional support and the fulfilment of certain rituals to protect the mother and child which are not offered by formal services (Leslie and Gupta, 1989). Another factor which may be particularly important in rural communities, where the nearest hospital or clinic may be several miles away, is the difficulty women may have in reaching these sources of care once labour has begun.

The aim of antenatal care is, from an early stage of pregnancy, to identify problems and give advice and appropriate care. Ebrahim (1985) lists among the objectives and activities of the antenatal clinic: health surveillance and the promotion of adequate maternal nutrition; immunisation against tetanus; health education; advice on child spacing; supervision of foetal growth; checking for anaemia, hypertension and the presence of albumin and sugar in the urine; the issue of iron, folic acid and antimalarials;

and the diagnosis of complications of pregnancy. In addition to these tasks, criteria are usually applied to identify mothers who are 'at risk'. A mother may be at risk for biomedical, social or environmental reasons, which may include exposure to the risk of infection with a STD due to her own or her partner's activities.

The earlier in pregnancy antenatal checks commence the better. Obstetricians suggest that, beginning in the first trimester, antenatal visits be made on a monthly basis to the seventh month, fortnightly to the eighth month and then weekly until birth. If the first antenatal visit is made at the third month of pregnancy this would translate to a total of 12 or 13 visits during the pregnancy. This 'ideal' may be difficult to obtain, especially in developing countries, and be medically unnecessary. Depending on a woman's overall health and nutritional status, fewer visits may be more appropriate (Leslie and Gupta, 1989). Ebrahim (1985) recommends that the average mother should make a minimum of five visits, of which at least three should be in the last trimester. As recorded in the NDHS, of those women who had antenatal care in the southwest region, 16.7 per cent had four visits or less, 61 per cent had between five and 11 visits and 22.2 per cent had 12 or more visits. Thus it appears that although most pregnant women seek antenatal care the majority make fewer visits than recommended by obstetricians in developed countries and a sizeable minority make fewer than the minimum number recommended by Ebrahim as being suitable for resource-poor settings.

Of the women in the southwest identified by the NDHS as having had antenatal care, 986 were able to report the duration of their pregnancy at their first antenatal visit. Only 18.4 per cent had an antenatal check during their first trimester. The majority of women (64.7 per cent) went for their first antenatal check when they were between four and six months pregnant. Sixteen per cent of women were seven to nine months pregnant at their first visit. As might be expected, Table 8.2 shows that those women who began antenatal care earlier in their pregnancies made more visits than those who commenced visits later in their pregnancies. However, even of women who began antenatal visits when their pregnancies were of seven months or more duration, over half made at least five visits.

Table 8.2

Number of antenatal visits by duration of pregnancy for women whose last birth was in the 5 years preceeding the survey, Nigeria southwest region 1990.

Number of antenatal visits	Duration of pregnancy (months) at first antenatal visit*		
	<4	4 to 6	7 to 9
4 or less	2.3	12.6	48.5
5 to 11	49.1	67.6	44.3
12 or more	48.5	19.7	7.1
Total	99.9	99.9	99.9
Number	169	596	142

* Refers to professional care only, that is care provided by a doctor nurse or midwife

Source: Nigeria Demographic and Health Survey data tape, 1990.

A number of socio-economic and demographic factors have been identified in various studies as important in the decision to use formal maternity care services (Leslie and Gupta, 1989). Age and parity are distinct factors that influence these decisions, but they are difficult to discuss separately because for an individual woman increasing parity is inevitably associated with increasing age. Most studies show that younger, lower-parity women tend to use services more frequently than older, and higher-parity women (Taylor, 1984; Wong *et al.*, 1987; Adekunle *et al.*, 1990). Although numerous studies have shown education to be positively related to the utilisation of maternity services (Taylor, 1984; Wolfe and Behrmann, 1984; Cleland and van Ginneken, 1988), the relationship between rising age and the lower use of maternity services may be confounded by the generally lower educational level of older mothers. It has been suggested that older, multiparous women use maternity services less than younger primiparous women because they are experienced in pregnancy and childbirth and feel more confident about the process (Adekunle *et al.*, 1990). The age and parity pattern so often seen may also be a result of the greater household responsibilities and childcare demands carried by older multiparous women (Wong *et al.*, 1987).

Table 8.3 gives a breakdown of the use of maternity care services by education, parity, residence and mother's age at the time of birth. The use of formal maternity care services increases with higher levels of education; the one exception to this is the proportion of women with post-secondary education who received a tetanus injection, which may be an anomaly arising from the small number of cases. The education differential is particularly marked for professional assistance at birth with only 50 per cent of non-educated women having been attended by a doctor, nurse or midwife at their last delivery compared to 75 per cent of women with secondary education and over 90 per cent of those with post-secondary education. Consistent with findings from other studies in Southwest Nigeria (Taylor, 1984; Adekunle *et al.*, 1990) professional antenatal care and assistance at delivery was highest among lower order births. The use of maternity services was higher in urban than in rural areas. The differential was quite

Table 8.3

For women who had their last birth in the five years before the survey, maternity care for last birth, by selected characteristics, southwest region Nigeria, 1990.

Characteristic	Received tetanus toxoid injection	Professional antenatal care*	Professional assist at delivery**	Number
Education				
None	72.5	78.8	50.9	404
Primary	73.4	82.3	60.7	361
Secondary	84.4	92.7	75.2	297
Secondary+	76.7	96.8	91.7	39
	df=3 p=0.001	df=3 p=0.000	df=3 p=0.000	
Birth order				
1	76.6	88.3	70.2	197
2 to 3	76.5	87.7	65.6	286
4 to 5	80.0	85.6	58.3	277
6+	72.5	77.8	57.6	340
	df=3 p=0.18	df=3 p=0.003	df=3 p=0.009	
Residence				
Urban	79.9	87.4	72.7	612
Rural	71.5	80.1	48.8	488
	df=1 p=0.001	df=1 p=0.008	df=1 p=0.000	
Mother's age at birth				
<20	72.4	80.6	56.1	98
20 to 34	78.0	86.3	61.9	769
35+	70.8	79.8	63.5	233
	df=2 p=0.04	df=2 p=0.03	df=2 p=0.460	
Total	76.1	84.1	61.7	
Number	838	926	681	1100

* Professional antenatal refers to antenatal care given by a doctor, nurse or midwife

** Professional assist at delivery refers to assistance given at delivery by a doctor, nurse or midwife.

Source: Nigeria Demographic and Health Survey data tape, 1990.

small for tetanus and antenatal services, but considerably greater for professional assistance at birth. Overall, the use of professional antenatal services was lower in the under-20 and the 35+ years age groups than in the 20-34 years age group. It could be argued that being young and perhaps unmarried compromises a woman's ability to use maternity services and that older women, who are more likely to have had at least one previous birth, do not feel they need assistance during pregnancy. No statistically significant association emerged between professional assistance at delivery and maternal age at time of birth in this crude correlation.

Given that there is a known co-variance of maternal education with place of residence a series of multiple regression analyses were carried out so as to aid interpretation of the data. A multivariate analysis using stepwise logistic regression was carried out with each of the dependent dichotomous variables - receiving/not receiving a tetanus toxoid injection, receiving/not receiving professional antenatal care, receiving/not receiving professional assistance at delivery. The independent variables included in the model were those from Table 8.3 : maternal age, education, parity and residence. The categories of education secondary and higher education were combined as a single category in the models. The full models for each of these analyses are shown in Appendix 16. The final models are shown in Table 8.4.

The odds ratios shown in Table 8.4 can be interpreted as indicating the risk of receiving a tetanus toxoid injection, professional antenatal care, professional assistance at delivery relative to the reference category of the variable when all other factors included in the model are held constant. With all three dependent variables parity did not remain significant and so was removed from the final model. The differentials between women with primary and no education were not large. However, secondary and higher educated women were 1.6 times more likely to receive a tetanus injection and over 3 times more likely to receive professional antenatal care and professional assistance at delivery. Urban residents are more likely to receive professional maternity care than women in rural areas. Receipt of tetanus injection and professional antenatal care was 1.5 times higher for urban women than rural women this rose to 2.5 times for professional assistance at delivery. This pattern is consistent with the scenario described above where rural women who have to travel for maternity services are unable to reach them once they begin labour. The model revealed that older women were significantly more likely to receive professional assistance at delivery than younger women.

It would appear that most women in Southwest Nigeria take advantage of professional antenatal services. Hospital and clinic-based delivery services are somewhat less widely patronised, with more than a quarter of women delivering in their own home. Such wide coverage means that should initiatives to prevent and cure RTIs be introduced into existing services, especially antenatal services, they could reach a large proportion of women. However, the evidence suggests that efforts would need to be made to encourage early initiation and a higher frequency of antenatal visits. the

Table 8.4 Logistic Regression Models - Final Models

Independent Variables	Dependent Variables: Received tetanus injection			Received prof. antenatal care			Prof. assistance at delivery		
	Signif.	OR	CI	Signif.	OR	CI	Signif.	OR	CI
Maternal Age	-	-	-	0.054	-	-	0.000	-	-
<20 vs 35+	-	-	-	0.165	0.638	0.340-1.195	0.000	0.348	0.205-0.589
20-34 vs 35+	-	-	-	0.284	1.239	0.842-1.829	0.002	0.600	0.432-0.833
Education	0.007	-	-	0.000	-	-	0.000	-	-
Primary vs none	0.881	0.975	0.705-1.348	0.448	1.155	0.798-1.671	0.032	1.392	1.031-1.879
Secondary/higher vs none	0.006	1.692	1.166-2.455	0.000	3.288	1.970-5.487	0.000	3.059	2.164-4.324
Urban vs rural residence	0.009	1.467	1.099-1.703	0.035	1.450	1.030-2.041	0.000	2.522	1.939-3.281

Signif. = Significance OR = Odds Ratio CI = 95% Confidence Interval

Source: Nigeria Demographic and Health Survey data tape, 1990.

proportion of births delivered at home by non-professional attendants highlights the fact that initiatives to improve the health of the mother and her child must include those who provide maternity services and assistance outside the hospital or clinic setting.

Maternity care in Ado-Ekiti

There are a number of sources of maternity care in Ado-Ekiti. Twice weekly antenatal clinics are held at the Ado-Ekiti State Specialist Hospital (AESH), at he local government maternity centres, at the Catholic mission hospital and at the Anglican mission hospital. In addition antenatal clinic are held in the larger private hospitals and by the various church-based maternity centres. Women may choose to deliver at any of these institutions. Traditional birth attendants and traditional healers also offer care during pregnancy, delivery and the postpartum period. Alternatively women may, of course, choose to deliver at home with the assistance of friends or relatives.

In the Ado-Ekiti survey all respondents were asked about the maternity care they received for their last birth. Of the 211 women who had their last birth in the five years preceding the survey, 88 per cent had received antenatal care from a doctor or nurse/midwife and 11 per cent received antenatal care from a church midwife.[2]

As Table 8.5 reveals, the use of maternity services was somewhat different from that found by the NDHS in that far fewer women delivered in their own homes and more chose to deliver at a church-run maternity centre. Such maternity centres are an important source of maternity care in Ado-Ekiti and the surrounding area (Adetunji, 1992), where the Christ Apostolic Church has a strong following. Table 8.4 shows that while most women delivered their child where they received antenatal care, this was not always the case. Over 23 per cent of women chose to deliver elsewhere. More than half the women who delivered at a church maternity centre had antenatal care at a hospital or clinic or had not received antenatal care. Seventeen per cent of women who had their last birth in the five years before the survey turned to private services for their antenatal care, and a similar proportion delivered at private hospitals or clinics.

[2] The term 'church midwife' refers to women who act as midwives at the maternity centres run by non-mainstream churches such as the Christ Apostolic Church. It does not refer to staff employed at mission hospitals run by mainstream churches such as the Anglican or Catholic Church.

Table 8.5
Utilisation of maternity care services by women who had their last birth in the five years before the survey, Ado-Ekiti, 1991.

Antenatal care	Where delivered							
	Govt. hospital	Govt. maternity	Private hosp/clinic	Church maternity	Traditional home	Own home	Total	Percent
Govt. hospital	65	3	5	10	1	6	90	42.6
Govt. maternity	3	40	1	5		1	50	23.7
Private hosp/clinic	2	1	29	2		2	36	17.1
Church maternity			1	20			21	10
Traditional healer					1		1	0.5
None	1			6		6	13	6.1
Total	71	44	36	43	2	15	211	
Percent	33.6	20.8	17.1	20.4	0.9	7.2		100

Source: Ado-Ekiti data tape 1992.

The antenatal clinics held at government and mission hospitals and clinics, especially those at the local government maternity and health centres, are well patronised. The sessions are used not only to check the health of the pregnant woman and her unborn child but also for health education purposes. The mothers receive talks on personal and environmental hygiene, immunisation, nutrition, family planning, care of mother and baby and advice on the number and frequency of antenatal visits that should be made during the course of the pregnancy. In many clinics, singing plays an important part in relaying these messages and appears to be much enjoyed by both clients and staff.

At the government and mission-run hospitals and health centres women making their first antenatal visit are asked for their birth and medical history. Enquires are made specifically about any heart, chest or kidney diseases and whether the woman has any history of yaws or diabetes. The physical examination includes measuring weight, height and blood pressure, and abdominal palpation. A urine sample is taken to check for albumen and sugar and a finger-prick blood haemocrit is routine. Antimalarial drugs, iron and folic acid supplements are prescribed where appropriate.

Staff interviewed at the clinics cited malaria, anaemia, threatened abortion and vaginal bleeding as the most frequently encountered problems among women coming for antenatal care. Although PID was listed among one of the common problems women suffer in Ado-Ekiti, RTIs were not identified by staff as a problem among women coming for antenatal services.[3] Women attending antenatal services were not asked about RTI symptoms or exposure to the risk of STD infection and information on RTIs was not included in the health education. However, it appears from the evidence presented in Chapter Four that in fact the prevalence of RTIs among women attending antenatal clinics in Ado-Ekiti is high and should be a matter of concern.

[3] An exception was the Director of the Ondo State University Health Centre, which serves the university staff and students, who reported that candidiasis is common in pregnant women and that some women were diagnosed during antenatal care as having PID.

In Chapter Six it was suggested that private sources of contraception often more effectively meet the needs of women than existing hospital or clinic-based family planning services. Women may choose informal services over formal institutionalised services not just because of obvious pragmatic factors such as the cost, privacy or physical accessibility of the service, but also for less tangible reasons. For example, in the case of church-run maternity centres there is a perception that they offer both physical and spiritual advantages to the mother and her child.

The religious picture in Southwest Nigeria is characterised by the existence of a large number and variety of Christian churches and fellowships. These churches include the mainstream Protestant (Baptist, Anglican and Methodist) churches, the Catholic Church, and the Aladura churches such as the Christ Apostolic Church (CAC) and the Church of Cherubim and Seraphim (C&S). In addition there are a large number of Evangelical churches such as the Apostolic Faith and Deeper Life. These churches vary in their teachings and in their attitudes towards such issues as family planning and the use of Western medicines; many of them offer faith healing and other health services. The CAC, which is particularly popular in Southwest Nigeria, has established maternity centres in a number of its churches to meet the maternity care needs of its followers and others.

Church-based maternity centres are a popular alternative to hospitals and health centres. These centres offer antenatal, intrapartum and postpartum care to women whether or not they are church members. The clinics held at these centres are popular not only because they are cheaper than hospital services and do not require the mother to bring as many of their own supplies,[4] but perhaps more importantly because they offer spiritual protection to the mother and her baby. As one of the expectant mothers at a CAC maternity centre put it:

> Women believe that when they come here they will not die, they are sure of going back alive. If something bad is going to happen in delivery a church member will have a vision, hear voices, have a dream. He will come to the maternity centre to tell them. They start powerful prayer so they are ready and know how to deal with it.

The Christ Apostolic Church Maternity Home in Oke Ila, Ado-Ekiti is probably quite typical. The home is staffed by a midwife who trained at the Christ Apostolic Church School of Midwifery in Ede, Oyo State, a training centre which was established by a qualified nurse. Antenatal classes are held every Monday and are attended by women who are usually in the last 3-4 months of their pregnancies. During these classes guidelines and directives are given on what to do during pregnancy; these include instructions on diet. Women are advised not to eat fresh meat, fresh fish or salt so as to avoid swelling. The midwife checks the general physical condition of the mother,

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[4] At the government hospital women are given a quite lengthy list of materials that they are required to provide at the time of delivery. This includes items such as soap, talcum powder, disinfectant and nappies.

monitors the heartbeat of the child and takes the pulse of the mother. The check does not include taking blood pressure, or testing the blood or urine.

One of the fundamental doctrines of the CAC is faith in divine healing and the power of prayer. Followers eschew the use of traditional medicines which are seen as being associated with the 'powers of darkness'. However, the attitude towards Western medicine is more lenient than that found in churches such as the Apostolic Faith, and its use is not considered sinful. During antenatal sessions prayers are said both to prevent any illness befalling the mother and child and to cure any ill-health that mothers may be experiencing. An important part of these sessions is the singing of songs which are used not only to reinforce the health education messages but to instil in the mothers a feeling of peace and joy, which is seen as essential to achieving a successful birth.

Problems that are encountered during the pregnancy, in labour or after delivery are cured through prayer. If someone is sick members of the congregation may pray for them individually, in a small group, during the usual service or during a revival service. The midwife of the centre explained that often, women with special problems will come to the centre. For example, women who have had two or three caesarean sections are often advised not to have any more children but many become pregnant again. In such cases the hospital may 'refuse to treat them', and so they come to the CAC centre.

When asked about difficult births the midwife claimed that these were rare because most women had attended the antenatal classes and so had benefited from preventive prayers. The maternity centre records showed that in the year beginning August 1st 1990, 144 babies had been delivered at the centre, all of whom, according to the midwife, were alive and well. Asked whether difficult cases were referred to the hospital she said that these were treated by prayer. However, she did concede that on occasion, relatives had chosen to take the woman who was experiencing difficulties to the Ado-Ekiti State Specialist Hospital.

How women choose maternity services and what factors determine their utilisation of these services is beyond the scope of this study. A number of factors have been shown to be important in this choice (Leslie and Gupta, 1989). These include: the availability of services, which encompasses the physical presence of a service and its physical and social accessibility; costs, both direct, such as fees, and indirect, such as time lost; and quality of care. Other factors such as the client's age, parity, income and competing time demands are also important. From focus group discussions and interviews with women in Ado-Ekiti it was clear that economic considerations such as the costs of services are important in the choice of maternity services. Two other factors in this choice which were frequently raised were past experience with the health service and the role of other family members in the decision-making process. The following statements by two respondents in Ado-Ekiti clearly illustrate these points:

> At my last birth I did not suffer any sickness during pregnancy but when I went to the hospital they found that my vagina was too tight for me to deliver. They

wanted me to have an operation but my husband said no and I went to a traditional home and delivered there. If I had gone to the traditional healer beforehand he would have known about the tightened vagina and would have been able to take preventative measures. The delivery was very difficult and the baby died.

Another description:

When I conceived of a male child, by the time I was two months pregnant I started vomiting and feeling dizzy. This was quite unlike when the pregnancy was that of a female child. I did not go to the hospital until the pregnancy was seven months because my husband used to buy drugs for me. I was very uncomfortable but the nurse only felt my abdomen and then told me to go home. It was at this stage that water started coming out. This continued for seven days during which labour pains also started. I had to go to hospital. There was nobody around when I gave birth to the baby. None of the nurses attended to me. Immediately the child came out I held on to its legs and the placenta came out. Not until the baby cried did the nurses come around. The next time I had a female child and the pregnancy was without problem. I went to B. clinic [a private clinic] to deliver and the doctor treated me well. I tell all my sisters not to go to that other place.

Reported obstetrical morbidities in Ado-Ekiti

In the Ado-Ekiti survey, respondents were asked if they had experienced any of a number of listed complaints during pregnancy, at delivery, or in the six weeks following delivery. The information on reported obstetrical morbidities and the related health-seeking behaviours is useful in exploring the use of maternity care services. It offers some insights into the degree to which antenatal services are being used as a curative or a preventive measure. This has important implications for the prevention and treatment of RTIs within antenatal care services. Should women seek antenatal care chiefly as a response to an obstetrical morbidity, this may militate against the use of preventive measures early in the pregnancy.

All the data reported in this section relate to the last live births of the 211 women who had their last live births in the five years before the survey. Respondents were asked whether they had experienced any of the following conditions during their pregnancy: heavy bleeding; fits; swelling of hands and/or feet; fever and shivers; frequent urination accompanied by a burning sensation; headache; discharge; or any other condition. In total 62 women (29.3 %) reported having one or more of these conditions during their pregnancies. Table 8.6 shows the frequency of reported complaints. Frequent urination with a burning sensation was the most commonly reported complaint. Frequent urination is quite normal in the later stages of pregnancy,

but if it is associated with a burning sensation this can be indicative of a urinary tract infection. Fever and shivers, headache and swelling of the hands and/or feet were also frequent complaints.

Table 8.6
Frequency of complaints reported as experienced by women during their pregnancies*, Ado-Ekiti, 1991.

Complaint	Number	Per cent
Heavy bleeding	7	3
Fits	3	1
Swelling hands/feet	15	7
Fever & shivers	26	12
Frequent urination & burning sensation	39	19
Headache	23	11
Vaginal discharge	4	2
Other	13	6

* Refers to women who had their last live birth in the 5 years before the survey.

Source: Ado-Ekiti data tape 1992.

Of the women who reported experiencing these conditions 44 sought treatment. Thirty-six chose to go to a doctor, five went to a spiritual or traditional healer and three either treated themselves or sought help from a friend. All the women who reported seeking treatment for their condition also reported receiving antenatal care (see Table 8.7). An important question is whether these women sought antenatal care because of the ill health they were experiencing.[5] It was found that in the main the women had already been attending antenatal classes when the complaint arose; that is, the antenatal services were being used preventively rather than curatively. Only seven women had attended antenatal sessions because they were experiencing ill-health. Attendance at church-run antenatal services did not preclude women from seeking treatment elsewhere. Three women who were attending antenatal classes at a church maternity centre chose to consult a doctor at the government hospital when they suffered ill-health during their pregnancies.

Most women had no complications at their last delivery; just over 10 per cent reported experiencing difficulties at the birth. Of these 23 women, nine delivered at a government clinic or hospital, five at a private clinic or hospital, seven at a church maternity centre and two delivered at home. The percentage of births with reported complications was twice as high for church maternity centre deliveries (16 %) as for deliveries which took place at a government hospital or clinic (7 %). The small sample size precludes any strong inferences being made about this apparent difference. However, the effects of lower uptake of antenatal care by women who deliver at church

[5] The significance of this point was only realized after the questionnaire had been printed and therefore the question relating to this point was attached as an addendum (see Appendix 3).

maternity centres, the lack of facilities at the centres and the characteristics of the clients they serve are areas which could be explored as possible contributing factors.

Table 8.7
Sources of antenatal care and treatment for prenatal ill-health by women who had their last birth in the five years before the survey, Ado-Ekiti, 1991.

Source of antenatal care	Source of treatment						
	Govt hosp/clinic	Private hosp/clinic	Church maternity	Traditional healer	Self	Friend	Total
Govt hosp/clinic	28	1	2*	1*	1	1	34
Private hosp/clinic		4					4
Church maternity	3		1		1*		5
Traditional healer				1			1
Total	31	5	3	2	2	1	44

* Indicates women who later sought treatment from a government hospital or clinic.

Source: Ado-Ekiti data tape 1992.

Women were also asked whether they had experienced any of the following in the six weeks following delivery: heavy bleeding with clots and pieces; fever and shivers; fits or convulsions; unusually heavy discharge; or any other complaint. Thirty-two women reported one or more complaints. Of these women, eight reported symptoms that were consistent with puerperal sepsis; that is, fever together with bleeding and/or malodorous discharge and/or abdominal pain below the umbilicus. Heavy bleeding was a frequent complaint, as were lower abdominal pain, general body aches, dizziness and weakness. Of the 17 women who reported seeking treatment, nine went to a private or government clinic or hospital, three had a friend or relative treat them and five went to a church maternity centre, spiritual healer or traditional healer. It can be seen from Table 8.8 that five of the 17 women consistently used the same source of maternity care throughout the period spanning pregnancy, delivery and the six weeks following delivery. Nine women returned to the place where they had delivered the baby for treatment in the postpartum period.

The very small numbers preclude any definitive statements being made about the use of maternity care services and obstetrical morbidities. However, they suggest that most women use antenatal care as a preventive rather than a curative measure. It also seems that women are quite consistent in their use of maternity services in that they tend to deliver their child where they received antenatal care and to seek postpartum care where they delivered. Although church maternity centres do not encourage women to seek treatment at hospitals and clinics, women who are suffering ill-health do turn to formal sources of maternity care for help.

Table 8.8

Maternity care and treatment for post partum ill-health for women who had their last birth in the five years before the survey, Ado-Ekiti, 1991.

Source of antenatal care	Place of delivery	Post-partum complaint	Source of treatment
Government hosp/clinic	Government hosp/clinic	Bleeding &fever	Government hosp/clinic
Government hosp/clinic	Government hosp/clinic	Fever & l.a.p.*	Government hosp/clinic
Government hosp/clinic	Government hosp/clinic	Bleeding	Government hosp/clinic
Government hosp/clinic	Government hosp/clinic	L.a.p. & body weakness	Trad. healer
Government hosp/clinic	Government hosp/clinic	Bleeding	Trad. healer
Government hosp/clinic	Government hosp/clinic	Discharge	Friend
Government hosp/clinic	Church maternity	Bleeding & fever & discharge	Spiritual healer
Government hosp/clinic	Private hosp/clinic	Fever & discharge	Private hosp/clinic
Private hosp/clinic	Private hosp/clinic	Fever & l.a.p.	Private hosp/clinic
Private hosp/clinic	Private hosp/clinic	Bleeding & fever & l.a.p.	Government hosp/clinic
Private hosp/clinic	Private hosp/clinic	Body aches & weakness	Relative
Private hosp/clinic	Government hosp/clinic	Weakness	Relative
Church maternity	Church maternity	L.a.p.	Church maternity
Church maternity	Church maternity	Bleeding & fever & l.a.p.	Private hosp/clinic
Church maternity	Private hosp/clinic	Fits/convulsions	Private hosp/clinic
None	Church maternity	L.a.p.	Church maternity
None	Own home	Bleeding & fever & discharge	Private hosp/clinic

*'l.a.p.' refers to lower abdominal pain

Source: Ado-Ekiti data tape 1992.

CHAPTER NINE

CONCLUSION

Introduction

The broad definition of reproductive health adopted by this study is 'the ability of men and women to undertake sexual activity safely whether or not pregnancy is desired, for women to carry a pregnancy to term safely, deliver a healthy infant and to be prepared to nuture' (Sai et al., 1989). It has been argued that, ultimately, any long-term substantial improvement in the reproductive health of women in developing countries must depend upon an improvement in the social status of women, an increase in their autonomy to make decisions about their own bodies, and greater influence to demand the fulfillment of their basic health care needs. The significance of this agenda should not be underestimated. However, there is a less fundamental change which may be affected to improve the reproductive health of women in the short term: the development of appropriate reproductive health care services. These services would meet the reproductive health needs not just of women as mothers but of the young, the unmarried, those with unwanted pregnancies, the infertile and those with reproductive tract infections (RTIs). There is a growing recognition of the need to make reproductive health services more appropriate to women's needs. The advent of HIV/AIDS as a global disease and its emergence as a threat, not just to homosexual men and drug abusers but to heterosexual men, women and children, has helped focus attention on other STDs and has strengthened the argument of those who advocate for the integration of initiatives for the prevention, diagnosis and treatment of RTIs into existing reproductive health programs. These infections are particularly worthy of attention given their significance as a major cause of female morbidity and the fact that for many of these infections treatment is relatively low-cost and easy to administer. The adverse effects of RTIs on the health of women in developing countries and the devastating sequelae of infection such as infertility could be radically reduced without resource to high technology solutions. Family planning and maternity clinics which serve large numbers of sexually active women are obvious potential sites for RTI prevention, diagnosis and treatment that are currently under utilised. This study investigates the level of RTIs found in Southwest Nigeria and in the urban community of Ado-Ekiti and explores local health beliefs relating to these infections. It examines how family planning and maternity services are currently being provided and used in Ado-Ekiti and the Southwest region and how they might be adapted to respond to new reproductive health care initiatives.

Levels of reproductive tract infection in Ado-Ekiti

There is little existing data on RTIs in developing countries. Whilst data from large-scale demographic and health surveys can be used to glean contextual information and data on contraceptive use and maternity care, the current investigation called for the gathering of new information. This was undertaken in a community study conducted in Ado-Ekiti, a town in the Ekiti region of Southwest Nigeria. Estimates of RTI levels were obtained from the clinical examination of a sample of antenatal clinic clients. It was established that the level of infection in Ado-Ekiti, whilst lower than that found in similar studies in other countries of sub-Saharan Africa, was high. One quarter of the antenatal clinic clients tested were found to have a STD and over half had a sexually transmitted or non-sexually transmitted RTI. Given that many of these infections were asymptomatic and that routine antenatal care in Ado-Ekiti does not include any screening procedures for RTI, this would imply that a large number of women are having their own and their children's health threatened by RTIs and their sequelae.

Health beliefs in Ado-Ekiti

One of the many potential pitfalls facing the development of new reproductive health initiatives, particularly in developing countries, is a failure to fully understand the complexities underlying the current practises of both health seekers and health providers. In particular there is a failure to recognise the impact of health beliefs on health-seeking behaviours, to understand the differing roles of formal and informal health care, and to be aware of the clash of explanatory models which may exist between health seekers and health providers. Beyond the need for epidemiological data on RTIs and health services research lies the need to understand how women interpret these infections, their causation beliefs and how they react to symptoms consistent with RTIs in terms of health-seeking and other behaviours.

Studies have shown that how a disease is recognised, its perceived cause and its feared outcomes play a major role in determining how the condition is managed and what behavioural changes are deemed appropriate to the sick role. In the case of sexually transmitted diseases, symptoms recognition, aetiological concepts and health beliefs may be important not only as factors in the seeking of timely and effective treatment but also in determining changes in sexual activity and the spread of infection. Women in Ado-Ekiti are concerned about their ability to conceive and carry a pregnancy to term. Whilst levels of infertility, one of the possible outcomes of untreated RTIs, appear to be low in the region and to have been declining over recent decades in Nigeria, the threat of infertility is held with abhorrence and constant fear. Women expect to be able to conceive within a short time of starting to try to conceive, and many women report what they perceive to be worrying delays. Women in Ado-Ekiti recognise that symptoms associated with RTI such as vaginal discharge, vaginal itching and lower

abdominal pain are related to conditions which have serious detrimental effects on their health and on their ability to conceive and bear children. However, their reactions to these symptoms vary considerably and are dependent upon what is believed to be causing them. It appears that women who believe themselves to have a sexually transmitted disease tend to turn to biomedical treatment, often in the form of pharmaceuticals sold over the counter. These women are likely to practise sexual abstinence until they judge their illness to be resolved. In contrast those women who share similar symptoms, but who ascribe them to natural causes, tend to choose more traditional forms of treatment and to continue sexual relations whilst experiencing these symptoms even though, in some cases, this is physically uncomfortable. This study would suggest that the first source of treatment sought by women with symptoms consistent with an RTI is often a traditional healer or a non-medically qualified provider of Western medicine. An intriguing question is *why* women make these choices. One observation made was that women who ascribed their condition to locally recognised illnesses were given short shrift by medical doctors, especially if there were no obvious physical manifestations of the condition. However, with a condition such as *eda* which is associated with sexual promiscuity, women, although symptomless, may have a firm basis for fearing that an illness has been transmitted to them by a sexual partner. In such cases, where there is a high risk of infection, to dismiss a woman's appeal for diagnosis and treatment may be to miss an opportunity to halt the spread of infection. The health education campaigns in Nigeria and elsewhere emphasise the need for safer sex and to seek diagnosis and treatment if exposed to risk. That women may express the fear of infection in terms at odds with biomedical categories should not preclude their receiving attention from medical staff. In societies such as Nigeria where the folk and biomedical models are so divergent, a case can be made for health education campaigns to be directed not only at the general public but also at health providers, so as to make them more aware of the need to be sensitive to the health beliefs of the communities which they serve.

In seeking health care women may choose informal services over formal, institutionalised services, not just because of obvious pragmatic factors such as the cost, privacy or physical accessibility of the service but also for less tangible reasons. For example, the spiritual advantage perceived as being offered to the mother and her child by church-run maternity centres. Ease of communication with the health provider, familiarity with and convenience of services are also important factors. In terms of health care for RTIs the practise of informal health providers may have inherent strengths. Traditional healers in particular possess an important skill, the basis of their practise, which is central to effective care for STDs - skill in listening and counselling. It could be argued that, rather than marginalising providers such as pharmacists and traditional healers, more effective care could be achieved by capitalising on their

strengths. By providing them with training, supplies and appropriate back-ups they could be integrated into a reproductive health care initiative.

The provision of family planning

A recent report from the Population Council (1992) gave some insights into the provision of family planning in Nigeria. A situational analysis was made in six states (Anambra, Kano, Niger, Osun, Lagos and Benue) of service delivery points (SDP) within the national primary health care program that provide family planning services. From an estimated total of 1,400 public SDPs 181 were sampled. The study identified a number of problems in the provision of family planning. These included lack of equipment, non-availability of the range of contraceptive methods at some delivery points and a lack of privacy for clients. The report also highlighted failings in counselling procedures, with some methods being excluded from discussions and issues such as side-effects, effectiveness and contraindications not being mentioned (Population Council, 1992).

Although a systematic study was not made of the provision of family planning services by clinics in Ado-Ekiti, a number of the shortcomings highlighted by the previously cited report were apparent. The problems of lack of privacy and lack of the equipment to carry out adequate health screening for women seeking contraception were particularly acute. Although most clinics had a blood pressure gauge and scales, lamps or torches and sterile gloves were rare and such basic supplies as sterilisation fluid and cotton wool were at a premium. The clinics were prey to infrastructural problems that meant that supplies of water and electricity were often unreliable.

An awareness of possible side-effects and contraindications associated with contraceptive methods helps an acceptor of contraception choose the method most suitable for her and thus contributes to the continued and effective use of contraception. An important role of the contraceptive provider is to counsel women so they can make informed choices. The provider must be thorough in assessing the suitability of methods for each client and have the skill to keep to a minimum any risk of infection associated with the procedures which they carry out. Based on observations made in Ado-Ekiti, it would appear that here as in other parts of Nigeria, providers are not fulfilling these roles and thus are putting their clients at risk of early discontinuation of contraceptive use.

One method of family planning for which the quality of provision is particularly important is the IUD. This method not only provides no protection against lower reproductive tract infection but can increase the risk of developing an upper reproductive tract infection, which can lead to serious conditions such as ectopic pregnancy and infertility. A number of conditions can make IUD use inadvisable. These include sexually transmitted diseases, severe anaemia and non-infectious conditions such

as cervical dysplasia or carcinoma (Winikoff, Elias and Beattie, 1992). However, screening procedures routinely carried out in developed countries such as Papanicolaou smears, cultures and haemoglobin analyses are rarely available in resource-poor settings such as Nigeria. The majority of providers are dependent on clinical signs alone to indicate the presence of an RTI when inserting an IUD.

In such a situation the assessment by providers of the appropriateness of IUD use for the client on the basis of medical criteria and exposure to the risk of STD is particularly crucial. Assessment of exposure to STD risk is often problematic because a woman may not have accurate knowledge of her partner's sexual behaviour. Discussions with family planning providers in Ado-Ekiti indicated that establishing a woman's STD risk status was not routine. Not all providers routinely asked new IUD acceptors about unusual vaginal bleeding, unusual discharge or pelvic pain. Further, observations made of IUD insertion techniques indicated that although familiar with the 'rules' regarding the use of aseptic techniques some providers did not obey these in practice. Procedures associated with IUD insertion may be putting women at unwarranted risk of infection.

In addition to problems associated with equipment, training and lack of counselling at family planning clinics in Ado-Ekiti there was a staff attitude problem. Younger, unmarried women who participated in the focus group discussions, when asked about using the town's family planning clinics, often alluded to the fact that they did not feel comfortable attending these clinics. One reason given was that they feared meeting a neighbour, friend or relative at the clinic. Another was that they were made to feel unwelcome by clinic staff. General comments made by staff at the clinics visited during the study conveyed the impression that young unmarried women who came to seek contraception were viewed with some distain by certain staff members. These staff thought such an open declaration of premarital sexual activity by young women to be somewhat shameless. The existing family planning services tend to be most attractive to married women. Never-married women are far more likely to use private sources, in particular pharmacies and patent medicine stores. These sources are popular in Ado-Ekiti despite their high cost relative to government services and are obviously fulfilling a need that the latter cannot meet.

The popularity of private sources, especially among never married women, raises the question of the extent to which these sources can provide, or be expected to provide, the level of counselling desirable in the choice of a contraceptive method. For example, for the contraceptive pill, contraindications against the use of hormonal contraceptives, information on possible side-effects and advice on the appropriate type of pill are all areas on which advice needs to be given. That counselling by private providers is possible has been demonstrated by the Ibadan Market-based Distribution Project (described above). A number of projects worldwide have sought to improve the service provided by pharmacies in relation to family planning. These projects have included the training of pharmacy clerks and pharmacists in family planning programs in

the Dominican Republic and Bangladesh and the providing of pharmacists in Ghana with posters and materials describing contraceptive methods and listing five-point screening questions for the use of oral contraceptives (Lande, 1989). Should local pharmacists be willing to participate, similar initiatives, coupled with a reliable supply of a range of contraceptive methods at low cost, could greatly improve the quality of service for women seeking contraceptives in Ado-Ekiti.

More innovative approaches to meet the information, counselling and contraceptive needs of both men and women are needed so as to equip them with the knowledge to make an informed choice of contraceptive method. Ideally such initiatives would offer access to advice relating not only to contraception but also to STD and HIV prevention. The training of young adults as counsellors to provide sex education in schools and other places where young people congregate, community-based distribution of contraceptives and 'Integrated Youth Centers'[1] (Townsend *et al.*, 1987) are options for the improved provision of contraceptive services to young adults which could be explored.

Induced abortion in Ado-Ekiti

The evidence from the Ado-Ekiti survey reveals that a relatively large proportion of sexually experienced women, 18 per cent, have had at least one induced abortion. As there is a likelihood of some degree of underreporting, this figure could be taken as a minimum. Women who abort tend to be young and to be experiencing their first pregnancy. That over 70 per cent of women who reported having had an abortion were unmarried at the time of their first termination may be interpreted an indicating a need for improved contraceptive services among this group. However, some caution should be taken in making too simplistic an interpretation of these results. Whilst it may be true that for many women induced abortion is a last resort solution some women may, for various personal and practical reasons, choose abortion over contraception as the method of choice for fertility control. The repeated use of abortion reported by some women in Ado-Ekiti may be indicative of this.

The risk of a woman acquiring a RTI or suffering complications from a RTI because of an induced abortion is related to the method used to terminate the pregnancy, the skill of the provider and the presence of an existing RTI. Dilation and curettage by a private practitioner is the most popular method of abortion in Ado-Ekiti. However, often this is carried out after an unsuccessful attempt using a less expensive, more easily accessible method such as patent medicines or traditional abortifacients.

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[1] These centers were set up by Prossuperacion Familiar Neolonesa in Monterrey, Mexico as part of a pilot project to provide improved contraceptive services to young adults. The centers provided sex education and family planning as well as counselling, academic tutoring and recreational activities (Townsend *et al.*, 1987).

This contributes to the increased risks associated with lengthening gestation. Women are chiefly reliant on services provided by private doctors but abortions are also performed by traditional healers and 'quacks'. As abortion is illegal and the provision of abortion services unregulated there is no check on the quality of services received or on the proficiency of those who provide them. Given that women who report having terminated a pregnancy show an earlier age at first sexual intercourse and a higher number of lifetime partners than those who do report an induced abortion, these women could be at higher risk of having an existing RTI, so increasing their risk of postabortal complications arising from an infection.

Although, given the small sample size and the survey's dependence on the reporting of perceived problems, it is not possible to offer firm conclusions, it is important to note that more than one-fifth of women who had an abortion in the five years before the survey suffered post-abortal complications which called for hospital treatment. This care was chiefly sought from the private rather than the government sector, often with the client returning to the provider from whom she obtained the abortion. Although it is not possible to quantify the problem from the Ado-Ekiti study data, there is no doubt that some women are putting their health at risk through unsafe and unhygienic abortions.

Contraception and induced abortion: Implications for women's reproductive health care in Southwest Nigeria

Whether a woman is using contraception in order to control her fertility, prevent infection or both, in order for her to be able to decide on what contraceptive method is most suitable for her needs at the current stage of her life, she must be provided with the information to be able to make an informed choice. To be able to exercise her choice there should be, within easy access, a variety of affordable, acceptable, effective methods which can be provided in such a way as to minimise health risks. The evidence on the patterns of contraceptive knowledge and use, the provision of family planning and the patterns of induced abortion in Southwest Nigeria and Ado-Ekiti suggest that women are being exposed to risks to their reproductive health in a number of ways. Levels of contraceptive use are low and women tend to use contraceptive methods that are less effective in preventing pregnancy. This, together with a shortening of the traditionally practised period of postpartum abstinence (Caldwell, Orubuloye and Caldwell, 1992), puts women at risk of unwanted pregnancies and of the dangers to health associated with having children too early, having too many children and having an unsafe induced abortion.[2] Existing family planning services tend to be most attractive to married women and fail to meet the needs of other important sections of the population

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[2] Pregnancy is riskiest to very young women (less than 18 years) and to older women with more than four births (Lettenmaier *et al.*, 1988).

such as young, unmarried women and men. That over 70 per cent of women who reported having had an abortion were unmarried at the time of their first termination serves to highlight this point. Access to the information needed to make considered choices about pregnancy and STD prevention is generally poor and of those women who do contracept, few use methods that offer any protection against the sexual transmission of RTIs

In most developing countries family planning programmes are implemented with a view to reducing levels of fertility and population growth and health initiatives such as RTI prevention and treatment often are deemed to be outside the mandate of family planning services. This narrow view ignores the reality that RTIs are closely linked with the provision, uptake and continued use of contraception. As is evident from this and other studies, the level of RTIs among 'ordinary' married women, the main target of family planning services, is such that to ignore these infections may be to jeopardise the success of the programme. Nigeria's population policy states that one of it's objectives is 'to provide fertility management programmes that will respond to the needs of sterile or sub-fertile couples to achieve reasonable self-fulfilment.' As RTIs are a major cause of sterility and sub-fertility this would suggest that they should be an area of concern. As such increased efforts need to be made to encourage women and their partners to use contraceptive methods which also offer some protection against STDs. The condom is the most obvious method, but the use of female-controlled methods such as spermicides and diaphragms which may provide significant protection should be encouraged as well. Young sexually active people must be given access to the information needed to make considered choices about pregnancy and STD prevention and also to the materials with which to realise those choices. One solution may be to change the nature of government services so as to be able to meet this need. An alternative, not exclusive, approach would be to take advantage of the popularity of private sources of contraception and to encourage and facilitate the broadening of these services to include information, education and counselling coupled with provision of a reliable supply of a range of contraceptive methods at low cost.

The question of the provision of abortion services is a more complex one bringing into play as it does deeply entrenched ideological and moral arguments. However, it is impossible to deny that induced abortion is a commonly used method of averting unwanted births which may be actively chosen by some women as more appropriate to their needs and circumstances than continued contraceptive use. Carried out under controlled, hygienic conditions induced abortion is a safe, extremely effective method of averting a birth. Methods such as menstrual regulation can be carried out at low cost, with little training and with a low risk of infection (Dixon-Mueller, 1988). More recently developed methods such as RU486 also show great potential, although its availability would have to be controlled so as to prevent its incorrect or inappropriate use.

A comprehensive reproductive health approach would encourage the inclusion of RTI prevention and control to ensure contraceptive safety, prevent infertility and increase contraceptive acceptance and continuation. There are a number of RTI interventions which could be integrated into existing family planning services. These include syndromic diagnosis and therapy of symptomatic infections; screening for genital ulcer disease, syphilis and cervical cancer; counselling on condoms and protection against RTIs; and the use of medical abortifacients which carry a low risk of RTI such as RU486 (Wasserheit and Holmes, 1992). In the current economic climate prevailing in Nigeria those initiatives which involve relatively large investments, such as screening for cervical cancer using Papanicolaou stains, would be unlikely to be implemented even given the will to do so. However, other less costly and potentially highly beneficial steps, such as the training of family planning workers in the recognition, prevention and treatment of RTIs, client counselling on RTIs and sexual behaviour, improvement in the quality of existing services and their expansion to include women not currently served would constitute a major advance towards improving the reproductive health of women in Nigeria.

The integration of initiatives for the prevention and treatment of RTIs into maternity care services: the case of antenatal care

Antenatal services have the potential to serve as an important avenue of RTI prevention and treatment. These services could be used to provide health education and information on preventive measures such as the use of condoms. Steps could also be taken within antenatal services to detect and treat RTIs so as reduce the transmission of infection and to prevent complications from developing which may endanger the health of the mother and her unborn child. In this section an examination is made of some of the measures for RTI prevention and treatment which might be appropriate for use in antenatal clinics. Based on observations made whilst carrying out the clinical aspects of the present study, the possible integration of these measures into antenatal services in Ado-Ekiti is discussed with attention to problems which might be encountered.

The prevention and treatment of RTIs: measures appropriate for antenatal services

There are a number of measures aimed at the prevention, diagnosis and treatment of RTIs which might be appropriate for integration into existing antenatal services. The introduction of information and advice directly related to RTIs into existing antenatal health education messages is a low cost intervention which could be quickly introduced. These messages would be aimed at alerting women to the potential dangers RTIs can pose to their own health and that of their child. They would provide women with information on how to recognise symptoms in themselves and their partners, and would identify sources of treatment. Core to any health education initiative would be information on how these infections can be prevented. This would include

information on personal hygiene and the use of the condom to prevent sexually transmitted diseases. Information on female-controlled methods of contraception that also offer some protection against STDs should also be offered. The health education materials prepared for such an initiative could be made available not only to government hospitals and clinics but to private hospitals and clinics and other sources of antenatal care, so widening the scope of access to this information.

An intervention which has been recommended by WHO is the use of antenatal clinics for the testing and treatment of maternal syphilis. Analyses in the UK and the US have demonstrated a continuing high ratio of benefits to costs for a policy of routine screening for syphilis, even at low prevalences (Stray and Pedersen, 1983 and Williams, 1985, cited in Wang and Smaill, 1989). In Norway antenatal screening for syphilis has been found to be cost-effective at a prevalence as low as 0.01 per cent; this largely reflects the high costs of medical, educational and institutional care in Western countries (Piot and Rowley, 1992). A pilot project in Zambia (Hira *et al.*, 1990) has illustrated how successful such interventions can be. The usual practice in testing for syphilis is to take a blood sample using a needle and syringe. This is sent to a laboratory where the sample is centrifuged and the serum used in tests such as RPR, VDRL and TPHA.[3] The results of these tests are then conveyed to the clinician who decides upon treatment. This process is time consuming and, should the client not return subsequent to testing, risks her going untreated. In this project, undertaken in Lusaka, pregnant women from three study centres (491 women) and from three control centres (434 women) were recruited. The women in the study group received health education aimed at improving early antenatal attendance and received, on-site, two screenings for syphilis, one at their first visit and the second in their third trimester. The screening was performed by clinic staff who used RPR card tests. Reactive sera was confirmed with a Fluorescent Treponemal Antibody-Absorption test. Those women found to be positive were treated by clinic staff with a single dose of benzathine penicillin.

The study found a seroprevalence of 8 per cent among women attending antenatal clinics, there was no difference between the study and control centres. Fifty seven per cent of syphilitic pregnancies ended with an adverse outcome, that is, spontaneous abortion, stillbirth, prematurity, low birthweight or congenital syphilis compared to 10 per cent amongst seronegative women. However, subsequent to the intervention, the adverse outcomes among syphilitic pregnancies at the study centres was reduced to 28.3 per cent, considerably lower than the 72.4 per cent found at the control centres.

There is very little information on the cost of diagnosing and treating RTIs in developing countries. Table 9.1 shows the cost of an intervention to diagnose and treat

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[3] These acronyms refer to the following tests: Rapid Plasma Reagin test (RPR), Venereal Disease Research Laboratory test (VDRL) and T. palladium haemagglutination test (TPHA).

congenital syphilis in Zambia as explored in the pilot study by Hira *et al.* (1990) described above. Schultz *et al.* (1992) estimate that for 1,000 pregnant women at 10 per cent seroprevalence, this relatively inexpensive intervention would prevent 17 spontaneous abortions, 19 perinatal deaths and 14 syphilitic infants. At a 1 per cent seroprevalence level it would cost approximately $420 to prevent two spontaneous abortions, two perinatal deaths and two syphilitic infants. Schultz *et al.* (1991, cited in Rooney, 1992) estimate that systematic screening and treatment of syphilis in pregnancy would be at least as cost-effective in terms of child health as the Expanded Program of Immunisation.

Table 9.1
Cost of congenital syphilis intervention for 1,000 women in Zambia

Component	Cost US$
Two tests per attendee (an initial visit in last trimester) at US$0.1 per test	200
Treatment of all reactors at first visit at US$1 per treatment	100
Treatment of subsequent visit at $1 per treatment, assuming 20 percent will be re-treated	20
Treatment of spouses at US$1 per treatment, assuming 67 percent of spouses of reactors treated	80
Amortized cost for development and printing of behavioural and educational material	100
Amortized cost for microcentrifuges and lamps	100
Total	600

Source: Piot and Rowley (1992:240) based on Hira et al., (1990).

There do not as yet exist simple, inexpensive diagnostic tests for gonorrhoea and chlamydia. Wang and Smaill (1989) review the effectiveness of screening for gonorrhoea in pregnancy, mainly in developed countries, and find that it is justified by the potential benefit, even where the prevalence rates are not high. They advocate the screening of all pregnant women early in pregnancy using culture techniques with repeated tests for high risk groups of women. Piot and Rowley (1992) present the cost, sensitivity and specificity of screening techniques for syphilis, chlamydia and gonorrhoea (see Table 9.2). It is clear that tests for gonorrhoea or chlamydia with any reasonable level of specificity and sensitivity are costly and are usually considered to be prohibitively expensive for widespread use in low-resource developing countries.

Table 9.2

Cost, sensitivity, and specificity of screening techniques for syphilis, chlamydia and gonorrhoea

Disease	Screening technique	Cost per test US$	Cost of clinic/lab	Total cost diagnosis	Sensitivity %	Specificity %
Syphilis	Serology	1.5	0.08	1.58	95	95
Chlamydia	Clinical	0	0.17	0.17	40	70
	Culture	12	0.08	12.08	80	99
	Antigen	5	0.08	5.08	75	95
Gonorrhea	Clinical	0	0.17	0.17	40	70
	Culture	5	0.08	5.08	95	100
	Microscopy	1	0.17	1.17	50	70

Cost per clinic or laboratory hour is assumed to be $1.00

Source: Piot and Rowley (1992: 232).

Another option for the management of RTIs in antenatal care programs is the introduction of management protocols for the diagnosis and treatment of symptomatic RTIs. Presumptive treatment of symptomatic women and their partners may be necessary where laboratory diagnosis is not available or affordable, particularly if prevalence is known to be high. Given that, depending on the infection, up to 50 per cent of women may be asymptomatic, this will obviously leave a number of infections undetected and untreated but, given the severe consequences of such infections for the mother and her child and the relatively low cost of the intervention, it may be argued that such an intervention is justified.

An important potential aid to the management of STDs at this level has been the development of simple patient management protocols which are created in the form of flow charts and which can be used effectively by non-specialists who have little or no access to laboratory diagnostic tests. *Management of Patients with Sexually Transmitted Diseases*, a report by a WHO study group (1991), presents 15 separate treatment approaches based on signs and symptoms (syndromes) to be used as guidelines for the creation of flow charts adapted to particular settings.[4] Such standardised treatment plans have been used in Zambia and Zimbabwe for over a decade and are being considered by Thailand, Kenya and St Lucia (Network, 1992). However, their use has not been validated through critical, well-executed field studies (Ronald and Aral, 1992).

Management protocols are designed to help the clinician to manage the patient on the basis of the epidemiological, clinical and therapeutic information available and provide a framework for evaluation and treatment (WHO, 1991). The design of these protocols must include problem identification, assessment of health care practices and

[4] For an example of a flow chart showing a management plan for vaginal discharge see Appendix 14.

policies in the community, identification of the users of the protocols, technical information on aetiology, diagnosis and treatment and testing of the protocol.

There are considerable regional differences in the pattern of STDs found in sub-Saharan Africa. For example, in East Africa, 50-70 per cent of genital ulcers are caused by chancroid with only 10-25 per cent due to syphilis. In contrast, genital ulcer diseases are less common in West Africa, where about 50 per cent are due to syphilis and 10-20 per cent due to chancroid (Meheus, cited in *Network*, 1992: 2). There may also be important temporal changes. For instance, in Nigeria, the share of gonorrhoea cases caused by resistant strains increased from zero to 70 per cent in just five years (Osoba and Path, 1986). In view of these regional and temporal variations, management protocols must be as specific as possible to the settings where they are to be used, and should be based on information on the local aetiology of infections, on laboratory tests available for diagnosis (particularly how they perform under local conditions) and treatment efficacy. Knowledge of the local epidemiology of STDs makes for more precise diagnosis and cost-effective treatment. For example, in an area where penicillin-resistant gonorrhoea is prevalent and chlamydia is uncommon it would be advisable to treat a male patient presenting with urethral discharge first with drugs for resistant gonorrhoea, and only if the symptoms persist treat for chlamydia.

Before an algorithm is applied a careful history should be taken and a genital examination carried out (WHO, 1991). However, in some circumstances even these basic means of diagnosis are not available. Where an examination table, gloves and speculum are not available the patient's complaints may be the only basis for management. A system of flow charts can be very effective for managing certain conditions, particularly urethral discharge in men and genital ulcer disease in men and women. However, its suitability for treating vaginal discharge is more questionable because of the wide range of infections that could be causing the condition. This problem is heightened in pregnant women, among whom increased vaginal discharge is common.

The success of management protocols and of screening for syphilis is dependent on ready access to the required drugs. In Zambia, in order to avoid the use of inappropriate drugs or the use of drugs provided for RTIs in the management of other illnesses, a special drug kit was provided to health units for use only for the treatment of RTIs (Hira *et al.*, 1990). This also permitted the cost of the treatment of RTIs to be monitored.

Should an antenatal client be diagnosed as having a STD there are two important aspects of STD management that need to be brought into play: counselling and partner notification. If a woman is found to be infected she should be counselled on treatment, the long-term effects of the disease, complications if any, when sexual relations can be resumed, the risk to neonates, the risk of reinfection, the fact that infected people may be asymptomatic, consequences of the failure of the partner to receive treatment, and

the importance of partner notification. Partner notification is a vital part of STD management as it is a way in which the chain of transmission can be broken. Moreover, it provides an opportunity to provide focused health education to those at risk through the provision of information, education and counselling as a means of discouraging risk-taking behaviour.

There are two routes of referral for patients found to have STDs, patient referral and provider referral. In the former infected patients are encouraged to notify partners of their possible infection. The health care provider may counsel patients about the information to be passed on to their partners and the methods of providing it. In provider referral the health care providers notify patients' partners. The infected patients provide information on partners to a health provider who confidentially traces and notifies the partners directly. Patient referral can be used in any situation and for any condition. Provider referral is usually restricted to a number of listed diseases and to situations where the patients are unlikely to contact their partners. In the context of maternity care services as distinct from a specialist STD clinic patient referral is the more appropriate and less expensive option.

The range of measures that might be introduced into existing antenatal health services in developing countries is restricted by financial constraints and shortages of equipment and trained personnel. These preclude use of the more sophisticated microbiological techniques that are routinely used in Western countries. However, pilot studies such as that carried out in Zambia (Hira *et al.*, 1990) suggest that certain procedures can usefully be adapted to resource-poor settings and that they may prove cost-effective. In the absence of inexpensive diagnostic tests emphasis on the treatment of symptomatic patients is important and can be combined with health education messages aimed at people with and without infections.

Integration of measures for the prevention and treatment of RTIs into antenatal services in Ado-Ekiti

The use of antenatal services by women in Ado-Ekiti is very high and, should interventions for the prevention and treatment of RTIs be introduced into these services, they have the potential to reach a large number of women. There are many factors which would need to be considered in deciding whether it is feasible to introduce these interventions into antenatal services in Ado-Ekiti. They include an assessment of the extent of the problem and the economic costs of RTIs to the community; the cost-effectiveness of the diagnosis and treatment of RTIs; and the effectiveness of the interventions. Also to be considered are: the degree to which these interventions would call for new equipment; the ability of the existing infrastructure to cope with any additional demands put upon it; and the attitude of staff and clients to the introduction of such interventions. The Ado-Ekiti project did not include a feasibility study of introducing measures for the prevention and treatment of RTIs into antenatal services.

However, presented here are observations made during the clinical part of the Ado-Ekiti study which give insights into some of the areas of consideration listed above.[5]

In Chapter Four evidence was presented to suggest that there is a relatively high level of RTI among women attending antenatal clinics in Ado-Ekiti. One-quarter of the 113 clients tested where found to have syphilis, gonorrhoea, chlamydia, trichomoniasis or a combination of these infections. If untreated these infections can lead to low birthweight and prematurity in at least 10 per cent of pregnancies. At least 30 per cent and up to 70 per cent of women with early syphilis, gonorrhoea and/or chlamydia will, if untreated, give birth to a child with a congenital or perinatal infection. The extent of the problem indicated by these estimates would suggest that RTIs should be an area of concern in Ado-Ekiti and that efforts should be made to prevent and treat these infections.

There is quite a wide range of facilities to be found in antenatal clinics in Ado-Ekiti. The primary level government maternity clinic is staffed by nurses/midwives and has very limited equipment; at the other end of the scale the State Specialist Hospital offers antenatal care by doctors trained in obstetrics and gynaecology, and has haematology, chemistry and microbiology laboratories. The basic requirements which ideally should be provided for the clinical management of STD are a table for pelvic examinations, a lamp or torch, a reliable supply of water and electricity, specula for pelvic examinations, sterilisation equipment, gloves, a microscope and equipment for taking blood. Although all clinics had a table, with the exception of one of the mission hospitals and the State Specialist Hospital, none had the full range of basic requirements and all the hospitals and clinics were subject to the vagaries of erratic electricity supplies. The laboratories at the Catholic and Anglican mission hospitals and the State Specialist Hospital are staffed by well-trained personnel, but they suffer from a lack of equipment and resources. The adaptations made by staff to cope with these inadequacies are often ingenious. However, in situations where a microbiology laboratory does not have its own refrigerator or even a reliable source of water there are limits to what can be achieved. There is not only a lack of equipment but also a lack of supplies. This problem is particularly acute in relation to pharmaceuticals in the government sector, with essential drugs often out of stock or out of date.

In Ado-Ekiti, even at the level of the State Specialist Hospital, the lack of supplies and equipment is acute. Given the current economic situation in Nigeria, the

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[5] There have been very few studies that examine the economic costs of RTIs, the cost-effectiveness of their diagnosis and treatment and the effectiveness of interventions, and these areas are beyond the scope of the present study. It should be noted there has been little research into the effectiveness of many of the measures found routinely in antenatal care. Indeed, Rooney (1992: 11) describes as 'striking' the persistent uncertainty concerning the value of many of the tests and treatments in comon use in developing countries.

prospect that the financial resources channelled into the public health system will radically improve in the near future is slim. Given the quite severe financial constraints under which antenatal clinics must operate, routine screening for chlamydia and gonorrhoea would not be economically feasible. Whether screening for syphilis would be recommended for Ado-Ekiti given the relatively low prevalence of two per cent seroprevalence found among women attending antenatal clinics would require research into its cost-effectiveness and feasibility. This would need to take into account factors that curtail the efficiency of syphilis control programs in pregnancy such as the need for technical accuracy and quality control of serology; late attendance for antenatal care; failure to treat sexual partners; reinfection of treated women; and inadequate supplies of the treatment drugs (Ronald and Aral, 1992).

Given that screening may not be a feasible option, the identification and treatment of symptomatic RTIs may be more appropriate. The WHO algorithms for the management of common STD syndromes and problems could be adapted for use in Ado-Ekiti. Suggested algorithms vary according to the equipment available to the health worker. For example, there are three algorithms for vaginal discharge depending on whether the examination is based on a vaginal examination only, a speculum examination, or a speculum examination with microscopy.[6] Currently most antenatal clinics in Ado-Ekiti do not have the equipment to perform pelvic examinations, but most do have facilities for sterilisation of equipment. Specula, a torch and sterile gloves could be provided at quite low cost and would greatly increase the health worker's ability to identify RTIs. Simple tests which are relatively low-cost and simple to conduct could be used to identify three common RTIs: candidiasis, trichomoniasis and bacterial vaginosis. Candidiasis is found commonly in pregnant women, and although unpleasant, has no harmful effects for the mother or her baby. However, there is some evidence that bacterial vaginosis is associated with premature rupture of the membranes, preterm labour and amniotic fluid infection (Gravett *et al.*, 1986), and it has thus been suggested that symptomatic bacterial vaginosis be treated routinely (Lossick, 1990).

Bacterial vaginosis can be diagnosed using simple tests and with a direct examination of a smear of vaginal fluid using a light reflective microscope (50x).[7] This microscopic examination can also be used to check for the presence of yeast and

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[6] At the State Specialist Hospital and at the Catholic mission hospital where the level of facilities are relatively high and where there is the necessary laboratory expertise, should funds be available for reagents and equipment it would be possible to use culture techniques for the identification of gonorrhoea. The use of culture techniques to identify chlamydia is more difficult and more costly. Enzyme immunoassay techniques such as those used in this study do exist for the identification of chlamydia, but these would be prohibitively expensive for routine use.

[7] For a discussion of the diagnosis of bacterial vaginosis and a detailed description of the tests involved see Appendix 9.

trichomonads.[8] Some skill is needed in using the microscope and there would be a need for collaboration between clinic staff and laboratory staff to facilitate training and to audit clinic staff who perform the microscopy. The Ado-Ekiti study identified one of the difficulties that might be encountered in putting these management protocols into practice: the potential for variation in interpretation by clinic staff. For example, one of the signs of bacterial vaginosis is the presence of 'thin homogenous vaginal discharge'. It took a number of discussions and observations of vaginal discharges before some sort of consensus was achieved amongst clinicians as to what such a discharge actually looked like. A number of algorithms for vaginal discharge are dependent on the colour and texture of the discharge. Such decisions are very subjective; for example, deciding whether a discharge is white, cream or yellow. It is also important to take account of local differences of expression. In Ado-Ekiti, where dairy products are not widely used it was found to be inappropriate to use 'cheesy' to describe the texture of discharge; comparing it to pap was found to be more suitable. In the training of clinic workers to carry management protocols, observation and practice through active participation in test procedures is essential.

Before any introduction of test procedures or infection management guidelines could be implemented in Ado-Ekiti, more would be need to found out about the pattern of RTI in the community so as to make them appropriate to local needs. The development and maintenance of gold standards to evaluate and audit test procedures would also be necessary. Management protocols may be devised and successfully used for the identification of RTIs, but they are of little use unless appropriate drugs are available for treatment of the infection. The public hospital and clinics in Ado-Ekiti have great difficulty in maintaining drug supplies, and what stocks they have are often out of date. Consequently most patients have their prescriptions filled at private pharmacies at increased cost to themselves. In the Ado-Ekiti study it was found that a number of the drugs used commonly in the treatment of RTI were not available at local pharmacies, and supplies had to be obtained in the state capital, Akure. Should the demand for these drugs increase there is little doubt that the major local pharmacies would begin to stock them. Whether infected women would be able or willing to pay for the full cost of treatment remains to be seen. In the Ado-Ekiti study treatment was provided free to infected women and their partners.

Assuming that diagnosis and treatment of RTIs was introduced into antenatal clinics, procedures for counselling and partner notification would also need to be developed. Women and their partners need careful counselling on the need to take medication according to instructions, to change behaviours that put them at risk of infection and to prevent reinfection. In the Ado-Ekiti study the counselling of antenatal clients diagnosed with STD was initially carried out by the doctor who performed the

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[8] Causative agents of candidiasis and trichomoniasis respectively.

physical examination. All of these doctors were male. It was found that some patients did not feel comfortable discussing these matters with the doctor. Some women said that they did not like to discuss these matters with a man even if he was a doctor. Another important comment was that they could not really understand some of the language the doctor used. Consequently one of the nursing staff at each of the clinics participating in the study took over the task of health education and counselling. The nurses seemed to be better at putting the women at ease. They were able to discuss matters with the women using the local Ekiti dialect and related the infections to local non-biomedical disease categories. They were present at each antenatal clinic session and so were available to provide on-going advice to the patients.[9]

It is important that an environment be created in which the patient can be counselled in private. In larger hospitals and clinics it may be possible to allocate a room or cubicle in which counselling can take place. This may be more problematic in smaller clinics, but is a very important requirement. The counselling must be non-judgmental and the staff must be sensitive to the feelings of the clients. This is especially true in situations where a woman, who may have had no previous knowledge of her infection, suddenly finds herself in the position of being diagnosed with a socially stigmatising disease which threatens not only her own health but that of her unborn child. Whoever carries out the counselling must be in possession of basic counselling skills, be able to discuss sex and sexuality comfortably and be able to meet the patient's need for confidentiality. Finding a suitably private location during the course of the study in Ado-Ekiti did not present a problem at the clinics; however, should counselling become a routine part of antenatal services some permanent location would have to be found.

Partner notification was found to be one of the most difficult aspects of the clinical study in Ado-Ekiti. In a situation where a woman is pregnant and dependent on her husband or partner for financial support, she may be unwilling to tell him of her infection because it reflects on her own or her partner's fidelity and may cause a serious disruption to the relationship at a time when stability is highly desirable. A system of patient referral was created whereby women diagnosed as having a STD were asked to deliver a card to their husbands or partners. On this card was given the time and location where free treatment and advice could be obtained. A lot of time was spent emphasising to women the importance of notifying their sexual partners so they too could be treated. However, very few men actually came to obtain treatment. Of the 37 men invited to attend less than one-quarter (nine men), came for treatment. Those who did attend were given counselling on the risk of infection, treatment and condom use. Women whose partners did not come for treatment were given medication, treatment details, a booklet

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[9] These nurses also acted as counsellors for women who had been identified in the household survey as being infected with a STD.

on condom use (in Yoruba, English or Pidgin)[10] and written information on the prevention and treatment of RTIs to pass on to their partners. However, finally, it was not known how many partners were notified and received appropriate treatment.

Although the need for partner notification must be strongly emphasised, it should be recognised by staff that for many women this may be a difficult task. In the Ado-Ekiti study it was found that the nurses who took over the counselling role from doctors were less rigid in their approach to this problem and more aware of the real difficulties which some women faced. For example, one patient felt she could not tell her husband of her infection because her two previous pregnancies had ended in miscarriage and she was worried that her husband would blame these losses on her infidelities. Six of the women diagnosed as having a STD requested that the nurse/counsellor accompany them to their homes to help explain to their partners the nature of the infection, treatment options, etc. It is important to note that a much higher proportion of these men than of those who were not visited by a nurse, five out of six, later attended the hospital for treatment. Whether it would be feasible for home visits to partners of infected women to be made routinely if requested is somewhat doubtful, but could be considered.

It is important to stress that in the Ado-Ekiti study diagnosis was made on the basis of comprehensive laboratory tests which would not normally be available. In situations where an unconfirmed diagnosis is based on signs and symptoms and is lacking in specificity, a decision would need to be made about the appropriateness of partner notification and the examination and/or treatment of partners.

The costs of equipment and of staff training, the maintenance of supplies and the availability of drugs are all potential hurdles in providing diagnosis and treatment of RTIs. An intervention which could be incorporated more easily into existing antenatal services is RTI related health education. Health education is already a central component of antenatal services. The messages relating to RTIs need to be designed to meet the needs of the target audience. Qualitative studies would need to be undertaken to develop suitable materials with input from both staff and clients. Talks by clinic staff, communal singing and wall posters are methods currently used to convey health messages in antenatal clinics which could be adapted. Given that the level of literacy among women in Ado-Ekiti is high, leaflets could be developed to relay health messages. These could be taken home by clients to show their partners, family and friends, and would help prevention messages to percolate out to the wider community.

The impression gained from Ado-Ekiti was that the staff who deal routinely with antenatal clients, for example nurses and junior doctors, would be very open to the idea

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[10] The booklets produced by the Planned Parenthood Federation of Nigeria were used for this purpose. These booklets emphasize the use of condoms both for family planning and for preventing the transmission of STD. Some pages of the Pidgin booklet are shown in Appendix 15.

of incorporating these health education initiatives into the existing program. However, some senior staff may be more questioning of the appropriateness of such actions. As discussed in Chapter Three, one hospital director objected to questions on recent sexual behaviour and the number of sexual partners being asked of antenatal clients. His view was that such questions would be embarrassing to the client, and would reflect badly on the hospital. Some senior hospital staff may object to the introduction of initiatives to address the problem of RTIs within maternity care services for fear that the services will become stigmatised by association with sexually transmitted diseases.

Care must be taken to ensure moves to introduce measures to prevent and treat RTIs into maternity care services pay due attention to the needs and rights of those women they are designed to serve. As in the Ado-Ekiti study, women must be given the information to make informed choices whether or not they would like to have the various screening and diagnostic tests. If the Ado-Ekiti study is any indication, the majority of women, once they learn of the effects RTIs can have on their own and their child's health and the relative ease with which most of them can be treated, will choose to be tested. At the same time it must be remembered that unlike patients who seek treatment for STD either because of symptoms or because of a partner's infection, women attending maternity services may be unaware of the possibility of their being infected and it may be difficult for them to accept. Counselling and education by staff who can communicate well with the patient, and the maintenance of confidentiality, must therefore be vital parts of any initiative to introduce RTI prevention and treatment into maternity services. How medical records are handled and maintained and the question of informed consent are important issues that must be addressed in this context. For example, it appears that antenatal records kept by the woman herself rather than by a health worker, hospital or clinic are less likely to be lost, can improve the transfer of information between levels and ensure recorded information is available when it is needed (Rooney, 1992). However, whilst this may confer great advantages in terms of continuity of care it may present problems to the client who wants to keep her record private from her family.

The prevention and treatment of RTIs through maternity services will place new demands on staff which should not be underestimated. The appropriate skills for diagnosis, on-site microbiological testing, treatment, education and counselling, and the maintenance of confidentiality must be provided to staff in training programs designed to meet the requirements of providers with differing levels of formal training. It must be recognised that some staff may be more adept than others at some aspects of this area of care, and that seniority of position does not always correspond with a greater ability to, for example, communicate with patients.

Another important point is that these measures cannot be successfully implemented without provision being made for some basic logistical needs. These would include the maintenance of supplies, the availability of effective drugs at low cost and

the provision of dependable supplies of water and electricity.[11] Research and periodic re-evaluation of RTI management protocols is also necessary. As mentioned earlier in relation to the emergence of penicillin-resistant strains of gonorrhoea, the characteristics of a disease can change quite rapidly, and this needs to be taken into account so as to make the protocols as effective as possible. Moreover, continuing work on the development of inexpensive and rapid diagnostic tests may soon offer feasible alternatives to the clinical management of RTIs.

As evidenced from Ado-Ekiti, a sizeable proportion of women choose to use private maternity care services. An extremely important area which needs further investigation is the extent to which private hospitals and clinics would be willing to introduce measures for the detection and treatment of RTIs into their maternity care services. A first step would be to make health education materials for the prevention of RTIs available to them. Ultimately however, it is patient demand that may well be the deciding factor. An increased demand for affordable detection and treatment of RTIs will depend on awareness among women of the impact RTIs may have on the health of themselves and their children. Such an awareness may be encouraged through health education, which may be particularly effective if it is carried out through women's associations and groups within the community.

Another area requiring further investigation is the existing and potential role of informal maternity care services in the prevention and treatment of RTIs. An important feature of the Safe Motherhood initiative has been the training of traditional birth attendants and midwives in aspects of hygiene and in the recognition of pathologies that require the intervention of a physician. Such training could be extended to include information on RTIs and instruction in simple prophylactic procedures such as that used to prevent gonococcal conjunctivitis in children.[12] This information could be offered to institutions such as the CAC School of Midwifery for inclusion in their program of instruction. Such moves to give local health providers the skills to provide care which is both appropriate and able to draw on the strengths of women's familial and community organisations could make a valuable contribution to efforts to improve the reproductive health of women.

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[11] In the Ado-Ekiti study it was not unusual for the State Specialist Hospital to be without electricity for a period of several hours each day. Water was also a problem and the investigator frequently brought gallon drums of water from her home (which had a water tank) to the hospital. The provision of large water tanks and efficient electric generators at the hospital and clinic would help alleviate these problems.

[12] A treatment which is easy to administer and involves using 1 per cent silver nitrate eye drops or 1 per cent tetracycline ointment. Routine prophylaxis at birth reduces the incidence of ophthalmia neonatorum by over 80 per cent (Laga et al., 1988).

Evidence suggests that the potential for improving the health of women through the detection and treatment of RTIs is high and offers benefits to children, male partners and the wider population.[13] The introduction of measures for the prevention, diagnosis and treatment of RTIs into existing maternal health services is one way in which these could be made available to large numbers of women. In considering the costs and benefits of these initiatives it must be remembered not only that the early detection and treatment of RTIs reduces complications arising from these infections such as ectopic pregnancy, PID and infertility which can be a heavy drain on health-care resources, but that it also reduces the transmission of STDs and its associated risk to public health.

There are many advocates for the introduction of measures for the prevention and treatment of RTIs into maternity services as part of an effort to achieve a more integrated approach to reproductive health care. However, in a resource-poor setting any such efforts must be preceded by a thoughtful scientific evaluation of the costs and benefits of such initiatives. The practical difficulties which may be encountered in their implementation must be seriously considered in the course of this evaluation. Should the decision be made to implement the chosen initiatives, as far as possible they must developed so as to be appropriate to the community in which they are to be carried out. They should take into account not only local epidemiological patterns but also cultural and social factors such as health beliefs and behaviours.

Concluding remarks

The question of how to improve the reproductive health of women in developing countries has, at last, begun to move beyond narrow programatic concerns stressing maternal and child health and the achievement of population policy goals. International agencies, public health and population experts have begun to realise the need to take a broader, more holistic approach to reproductive health - an approach which recognises the varied needs of women in different stages of their lives. The improvements in health care that may be created through the integration of services and the synergy so created is attractive not only in terms of better serving the client's needs and in achieving health and population policy goals but in terms of increased efficiency, effectiveness and reduced costs.

This study has focused on how individual women react to disease, how services are provided and used and how they might be adapted to respond to the needs of women for services to prevent, diagnose and cure RTIs. These are vitally important

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[13] These include a reduction in foetal and child morbidity and death associated with the mother's infection with an RTI and a reduction in the transmission of STDs to male partners. An example of the wider public health benefits is those gained from syphilis screening. This is a useful surveillance method to assess the magnitude of STD morbidity in the general population and to evaluate the effectiveness of AIDS and STD prevention and control programs.

issues. However, central to achieving improved reproductive health for women is the involvement of women themselves. Rather than being passive recipients of health care initiatives they should be given the opportunity to act as active agents whose needs are voiced and recognised. Women's associations and organisations have been identified as focal points for social and economic transformation in Nigeria. Their role should be equally recognised in obtaining community involvement in and support for appropriate health policy. This approach would create a foundation for success through community-based health education for men and women, old and young.

Reproductive tract infections impact negatively on the lives of women around the world. However, it is in developing countries, where many women suffer physically, socially and emotionally from these infections, that they take the heaviest toll. Currently these infections are not addressed by the most widely used reproductive health programs - family planning, maternal and child health and safe motherhood. However, slowly the significance of these infections is being recognised and responded to. In the meantime, women in Ado-Ekiti and other communities around the world wait for the day when the promise of accessible, effective and culturally appropriate health services to resolve these infections becomes a reality.

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Appendix 1

Interview guidelines for health care providers

Locations

Hospitals
Out-patient Clinics
Primary Health Care Clinics
FP/MCH services

Interviewees

GP/OBGYN/STD physicians
Midwives
Community Health Workers
TBAs
Traditional Healers
FP/MCH clinic staff

Objectives

Types of morbidity most frequently observed among women
Characteristics of women prone to suffer from reproductive morbidity
Possible causes of the diseases observed
What actions affected women take
Community perception of reproductive health problems
What they feel are the most important areas of concern in relation to reproductive health

A. PATTERNS OF MORBIDITY AND AREAS OF CONCERN

I would like to ask you some questions about the health problems of women who use your services. I am particularly interested in reproductive health problems, by that I mean any illness, injury or condition that affects the reproductive tract. These conditions could arise due to pregnancy, abortion, childbirth, sexual behaviour or through practises such as female circumcision.

1. What are the most common health problems of women who use your services?

2. What are the most common health problems related to pregnancy?

3. What are the main causes of these pregnancy related health problems?

4. What do women do if they have a pregnancy related problem?

5. What are the most common health problems related to childbirth?

6. What are the main causes of these childbirth related problems?

7. What do women do if they have a childbirth related problem?

8. What other conditions do you often see that are not related to pregnancy or childbirth but affect the reproductive system?

9. What are the main causes of these gynaecological conditions?

10. What do women usually do if they have a gynaecological problem?

11. What are the characteristics of women prone to suffer from reproductive health problems?

12. What in your opinion is the attitude of the community to women who suffer from reproductive health problems? Are there any conditions which are seen as particularly shameful or embarrassing?

13. In your judgement are reproductive health problems an area of concern in Ado-Ekiti and the surrounding villages?
If yes, what in your opinion are the most important reproductive health problems?

14. What problems or difficulties do you think may be encountered in interviewing women in their homes about their reproductive health? Can you suggest any ways in which these difficulties could be overcome?

B. SERVICES PROVIDED

I would now like to ask you a few questions about the services that you provide here.

1. What are your hours of opening?

2. What services do you offer here?

3. If there are services that are not available everyday when are they available?

4. What are the costs of services and medicines to patients?
[Restrict to those services relating to women's health]

5. What is the average number of women patients seen daily?

6. Of these women what percentage attend because of reproductive health problems?

7. Please list the most frequent reproductive health problems that you encounter? Could you estimate what percentage of all women patients present with these problems?

8. Where do the majority of women who attend your services live?

9. Do you refer your patients to other services? If so, which services do you refer them to?

10. In your opinion why do women come here rather than use another service?

Appendix 2

Focus group interview schedule

Notes for interviewer

Many studies have found that causes of illness are often misclassified in surveys because of differences which may exist between local diagnostic defintions and those defintions found in Western medicine. The aim of the focus group discussions is to learn about the local conceptions of illness:-

- what are classified as reproductive illnesses,
- how symptoms are grouped according to illness,
- what causes are given for these illnesses,
- what options for treatment are known,
- how can these illnesses be prevented,
- community attitudes towards women who have these illnesses.

Of special interest is womens knowledge of and attitudes towards reproductive tract infections (RTIs). The interviewer should seek to find out as much as possible on knowledge of and attitudes towards RTIs. In addition to those questions listed above the interviewer should ask about what women see as the possible long term outcomes of RTIs.

This information will be used to develop an appropriate questionnaire for collection of survey data on women's reproductive health problems.

Introduction of study to group

Discussion guidelines

1. Names of the common illnesses that affect women.
[Seek as comprehensive list as possible]

2. Which illnesses are related to pregnancy or childbirth?

3. For each illness mentioned as being related to pregnancy or childbirth ask:
   Symptoms of the illness
   Causes of the illness
   How serious is the illness
   What is usually done about it

How can it be treated [all treatments known]
What would determine the kind of treatment a woman saught
How can the illness be prevented
Does the illness cause any shame or embarrassment

4. Which illnesses are related to pregnancy or childbirth but affect the reproductive system?

5. For each illness mentioned as being related to the reproductive system but not pregnancy or childbirth ask:

Symptoms of the illness
Causes of the illness
How serious is the illness
What is usually done about it
How can it be treated [all treatments known]
What would determine the kind of treatment a woman saught
How can the illness be prevented
Does the illness cause any shame or embarrassment
What are the possible long term effects of the illness

6. Ask the group for any comments or questions they may have

Closing comments

Appendix 3

Ado-Ekiti survey questionnaire

REPRODUCTIVE HEALTH SURVEY

FEMALE INDIVIDUAL SCHEDULE

IDENTIFICATION

PLACE NAME Dalimona

ZONE NUMBER 06

DWELLING UNIT NUMBER 63/21

HOUSEHOLD NUMBER 03

WOMAN NUMBER 01

NAME OF RESPONDENT Adijat Fajudeen

ADDRESS OF RESPONDENT

No 21 Stadium Road

INTERVIEWER VISITS

DATE	5/11/91	1	2	3 FINAL VISIT.
INTERVIEWERS	Sade			
RESULT*	1			

* RESULT CODES:

1. COMPLETED	3. POSTPONED	5. PARTLY COMPLETED
2. NOT AT HOME	4. REFUSED	6. OTHER (specify)

INDICATE THOSE PRESENT DURING INTERVIEW:

REPRODUCTIVE HEALTH QUESTIONNAIRE

RECORD THE TIME (time started) HOUR _____ MINUTES _____

NO	QUESTIONS AND CODES	VALUE	SKIP
	I WOULD LIKE TO ASK YOU A LITTLE ABOUT THE HOUSEHOLD:		
001	How many rooms does your household occupy? Yara meloo ni ebi yin n lo? No of rooms	01	
002	What is the major source of water for household use? Ilana pataki wo ni idile yin n gba lati ri omi lo? Piped supply inside house Public tap Well Stream Hand/electric pump. Other (Specify)	1 2 3 4 5 6	
003	What kind of toilet facilties does your household have? Iru ile iyagbe wo ni idile yin n lo? Flush Pit Bucket Bush Other (specify)	1 2 3 4 5	
004	Does any member of the household own the following? Nje enikankan ninu ebi yin ni? Clock/Watch Television Radio Refrigerator Air conditioner Car Bicycle	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
005	INTERVIEWER. OBSERVE AND INDICATE MAIN MATERIALS OF THE FLOOR Wood planks Cement Earth/sand Title Other (specify)	1 2 3 4 5	
006	INTERVIEWER: OBSERVE AND INDICATE MAIN MATERIAL OF THE WALLS. Cement Wood Zinc Mud/earth Other (Specify)	1 2 3 4 5	

NO	SECTION ONE: QUESTION AND CODES	VALUE	SKIP
101	Where were you born? Nibo na ni e si? - - - Irere Ekiti - - - - -		
102	Have you lived continuously in Ado-Ekiti since you were born?		
	Yes	(1)	106
	No	2	
103	In what kind of area did you live mostly when you were growing up, say to age 12? Was it a village town or city? Ki e to di omo odun mejila, abule le gbe ju ni tabi ilu kekere tabi ilu nla?		
	Village	1	
	Town	2	
	City	3	
104	How long have you been living in Ado-Ekiti? O ti to igbawo ti e ti n gbe ni Ado-Ekiti? (IF LESS THAN ONE YEAR CODE AS 00)		
	Years	- -	
105	Before you moved here were you living in a village town or city? Ki o to di pe e ko de ihin, se abule tabi ilu kekere tabi ilu nla ni e n gbe?		
	Village	1	
	Town	2	
	City	3	
106	In what month and year were you born? Ninu osu wo ati odun wo ni abi o?		
	Month	- -	
	Month unknown	(98)	67
	Year	67	
	Year unknown	98	
107	How old were you at your last birthday? Omo odun melo ni yin nigba ojo ibi yin to gbeyin?		
	Age in completed years	--	
	Age unknown	98	
	Age estimated	23	
	COMPARE 106 AND 107 IF INCONSISTENT PROBE TO CORRECT EITHER 106 OR 107.		
108	Have you ever attended school? Nje o lo si ile iwe ri?		
	Yes	(1)	
	No	2	110
109	What was the highest level of school that you reached? Iwe meloo ni o ka?		
	Some primary (not completed)	1	
	Completed primary only	(2)	
	Secondary (not completed	3	
	Completed secondary	4	
	Modern school	5	
	Teacher Training /School certificate	6	
	Polytechnic	7	
	University	8	
	Other (specify)	9	

(CHECK 109 COLUMN: IF 110, FORM AND ABOVE GO TO 111)

110 Can you read a letter or newspaper (in any language) easily, with difficulty, or not at all?
Nje e le ka leta iwe irohin (ti a ko ni ede kankan) lakaye pelu irorun, pelu isoro tabi e o tile le ka a rara?

Easily	1	
With difficulty	(2)	
Not at all	3	

111 What is your religion?
Kini esin re?
NOTE CHURCH

Islam ...Muslim...	(1)	
Christian Chruch	2	
Traditional African Religion	3	
No religion	4	
Other (specify)	5	

112 Aside from usual Household work, do you earn money from work outside the home?
Yato si ise ile, nje o nse ise miran ti o nmu owo wale fun o?

Yes	(1)	
No	2	201

113 What kind of work is it?
Iru ise wo ni?
(Record varbatim) ...She sells meat in the market...
.....

SECTION TWO

201 Have you ever been married?
IF YES, Did you have a marriage ceremony?
Nje a ti gbe o ni iyawo ri? Ti o ba je beeni, se igbeyawo naa ni ayeye nnny ?

Yes, With ceremony	1	205
Yes, without ceremony	(2)	205
No	3	

202 Have you ever had a regular partner, (a partner for at least 3 months)?
Nje e ti ni ore okunrin/afesona ti ore yin se deede ri (fun bii osu meta)?

Yes	1	204
No	2	

203 Have you ever had sexual intercourse?
Nje e ti ni ibalopo pelu okunrin ri?

Yes	1	301
No	2	410

204 How old were you when you first had a regular partner?
O to omo odun melo ni igba ti o koko ni afesona, ti ore yin se dede?

Age in years	--	211 212
Don't know	98	211

205 How many times have you been married?
O to igba melo ti a ti gbe o ni iyawo?

Number of times	01

NO	QUESTIONS AND CODES	VALUE	SKIP
206	IF ONLY ONE MARRIAGE GO TO 207 IF MARRIED MORE THAN ONCE ASK:-		

	1ST MARRIAGE	2ND MARRIAGE	3RD MARRIAGE
YEAR MARRIED			
YEAR MARRIAGE ENDED			

207	How old were you when you first married? Omo odun melo ni a ni igba ti o koko gbe o ni iyawo?		
	Age in years	18	
	Don't know	98	
208	Are you currently married? Nje owa nile oko nisinyi?		
	Yes	1	214
	No	2	
209	Are you widowed, divorced or separated? Se oko re si wa laaye, tabi oti ko oko re, tabi o ko gbe ibi kanna pelu oko re?		
	Widowed	1	
	Divorced	2	
	Separeted	3	
210	When did your last marriage end? Lati igba wo ni iwo ati oko re ko ti jo gbe po mo?		
	Year	--	
211	Have you had a regular partner (that is a partner for at least 3 months) since your marriage ended? Nje o ti ni ore okunrin/afesona (ti e jo wa papo fun bii ~~osu meta~~ tabi ju bee lo) lati igba ti iwo ati oko re ko ti jo gbe po mo?		
	Yes	1	
	No	2	214
212	Do you currently have a regular partner? Nje o ni ore okunrin kan pato, ni lowolowo yi?		
	Yes	1	214
	No	2	
213	When did you last have a regular partner? Ni igba wo ni o ti ni ore okunrin/afesona ti o de deede gbehin?		
	Month	--	
	Don't know month	98	
	Year	--	
	Don't know year	98	

Q 214 to Q 224 TO BE ASKED OF CURRENT OR LAST HUSBAND/REGULAR PARTNER.

214	How old is your husband/regular partner? Omo odun melo ni oko re/ore okunrin ti o se deede?		

NO	QUESTIONS AND CODES	VALUE	SKIP
215	Has he ever attended school? Nje O (oko re/ore re okunrin) lo si ile iwe ri?		
	Yes	1	
	No	2	217
	Don't known ...	98	217
216	What was the highest level of schooling he reached? Iwe melo ni o ka)		
	Some primary (not completed)	1	
	Completed primary only	2	
	secondary (not completed)	3	
	Completed secondary	4	
	Modern school	5	
	Teacher training/school certificate	6	
	Polytechnic	7	
	University	8	
	Other (Specify)	9	
217	What kind of work does your husband/regular partner do?. Kini ise ti oko re/ore re okunrin ti o se dede nse? (Record verbatim) ..... He sells meat in the market at Oyo town		
218	Do you see your husband/regular partner So o ma nri oko re/ore re okunrin ti ose dede ni:		
	Everyday	1	
	At least once a week	2	
	At least once a month	3	
	Less often than once a month	4	
219	Has your husband/regular partner been away for any trips lasting more than one month in the last 2 years? Nje oko re/ore re okunrin ti ose deede ti ló si irin ajo ti oju osu kan lo, ni nkan bii odun meji sehin? He always goes to Oyo		
	Yes	1	
	No	2	~~220~~ 221
220	In total how many months has he been away (separated from you) in the last 2 years? Ni apapo, o to osu melo ti o fi lo si irin ajo (ti o kuro lodo re) ni bii odun meji sehin?		
	Months	02	
221	Does your husband/regular partner have any other wives/regular partners? Nje oko re/ore re okunrin ti o se deede, ni Iyawo/ore obinrin miran ti o se deede?		
	Yes	1	
	No	2	224
	Don't know	98	224
222	How many wives/regular partners does he have?		

NO	QUESTIONS AND CODES	VALUE	SKIP
223	Are you the first second .... wife? Se eyin ni iyaw akoko, tabi ikeji ...? Rank	--	
224	What is your husband/regular partners ethnic group? Yoruba Igbo Hausa Other (specify)	(1) 2 3 4	
	SECTION THREE I would like to ask about all the children with whom God has blessed you. Please do not feel that I am counting your children, but it is very important to obtain complete information on childbearing in Ado-Ekiti. God will certainly bless and protect your children . Yoo wu mi lati beere nipa awon omo ti Oluwa fi kee yin, E jowo e mase ro pe mo nka awon omo yin, nse ni o pan dandan lati gba alaye lekunrere nipa omo bibi ni ilu Ado-Ekiti yi. Dajudaju Oluwa yoo sike, saabo awon omo yin. Ni bayii, n o fee bere nipa gbogbo omo ti e bi laaye yin.		
301	Have you ever given birth to any children? Nje o ti bi omo kankan ri? Yes..... No	(1) 2	 317
302	Do you have any sons or daughters you have given birth to who are living with you? Nje awon omo yin okunrin tabi obinrin kankan ngbe pelu re? Yes No	(1) 2	 304
303	How many sons live with you? And how many daughters live with you? Omo yin okunrin melo ni o ngbe pelu re? Ati omo yin obinrin melo ni o ngbe pelu re? Sons at home ..... Daughters at home ...	01 01	
304	Do you have any sons or daughters you have given birth to who are alive but do not live with you? Nje o ni omo okunrin/obinrin ti o wa laaye, Sugbon ti ko gbe pelu yin?. Yes No	(1) 2	 306
305	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you?. Omo yin okunrin/obinrin melo ni o wa laaye, sugbon ti ko gbe pelu yin? Sons eleswhere ..... Daughters elsewhere ...	-- --	
306	Have you ever given birth to a boy or a girl who was born alive but later died? If [illegible]: Any boy or girl who smiled or showed any sign of life but only survived a few hours or days?		

NO	QUESTIONS AND CODES	VALUE	SKIP
	Nje e ti bi omo okunrin/obinrin ti oje aaye ni igba ti obi, se alaisi ni kete ti a bi, sugbon ti o kuni igba die si? Ti o ba je beeko, WADI: Omo okunrin tabi omo obinrin ti o ke tabi ti ofi ami han pe o wa laaye, sugbob ti ko gbe ju wakati die tabi ojo die lo?		
	Yes	(1)	
	No	2	308
307	How many boys have died. And how many girls have died? Omo okunrin melo ni o ti se alaisi? Ati omo obinrin melo ni oti se alaisi?		
	Boys dead	01	
	Girls dead	00	
308	ADD ANSWERS TO 303, 305, 307 ENTER TOTAL -CHECK AND SAY: Just to make sure that I have all this information correctly, you have had _____ live births during your life. Is that correct? Ki n le mo boya mo gbo yin ni agboye, e so pe gbogbo omo ti e bi ni aaye je 03 se mo gba a?		
	Yes	(1)	
	No	2	
	IF NC, PLEASE PROBE AND CORRECT RESPONSES AS NECESSARY.		
309	In what month and year was your last child born? Inu osu wo ati odun wo ni e bi omo ti e bi kehin?		
	Month	12	
	Don't know month	98	
	Year	90	
	Don't know year	98	
310	Is he/she still alive? Nje o si wa laaye?		
	Yes	(1)	
	No	2	312
311	How old was she/he on his/her last birthday Omo odun melo ni ojo ibi ti o se kehin.		
	Age in year ...11 months	--	313
312	How old was she/he when she/he died? Omo odun melo ni omo na ni igba ti ose alaisi?		
	Days	--	
	Weeks	--	
	Months	--	
	Years	--	
313	Did you breastfeed your last child? Nje e fun omo yin ti o bi kehin ni omu?		
	Yes	(1)	
	No	2	315
314	How long did you breastfeed the child? O to igba wo ti efi fun omona ni omu?		
	Days	--	
	Weeks	--	
	Months	--	
	Years	--	
	Still breastfeeding (98)	(98)	

NO	QUESTIONS AND CODES	VALUE	SKIP
315	Did you abstain from sex after the birth of your last child? Nje e yera fun ibalopo pelu oko yin, ni eyin ti e bi omo yin ki kehin?		
	Yes	(1)	
	No	2	317
316	How long did you abstain for? O to igba wo ti e fi yera?		
	Days	--	
	Weeks	--	
	Months	--	
	Years		
	Still abstaining (88)	(88)	
317	Are you currently pregnant? E e loyun lowolowo bayi?		
	Yes	1	~~319~~
	No	2	319
	Don't know	98	319
318	How many months pregnant are you? Oyun osu melo ni e ni bayi?		
	Months	--	
319	Would you like to have a(nother) child or would you prefer not to have any (more) children? Se e fe lati bi omo kan si, tabi e ko fe lati bi omo miran mo?		
	Would like a (nother child	1	
	No more children	(2)	
	Can't get pregnant ...	3	
	Undecided/don't know	4	
	SECTION FOUR		
401	Here are various ways and methods that a man and a woman can use to avoid or delay a pregnancy. Which methods do you know? Orisirisi, ona ati ilana ti okunrin ati obinrin le tele lati ma je ki oyun duro. Awon ilana wo ni e mo? (Code. Afterwards cite one by one each method not yet mentioned)	YES	NO
	a. Pill: (women take a pill every day) Oogun onikoro: (Awon obinrin maa nlo oogun onikoro kookan ni ojojumo)	1	(2)
	b. IUD: (Women have a loop or coil placed inside them by a doctor or nurse) Nkan ti won maa nfi si inu obinrin lati oju ara (Nkan bii okun tabi ti ori lokoloko ti awon dokita, noosi, onise eto ilera maa nfi si inu obinrin.	1	(2)
	c. Injection: (women receive an injection by a health worker nurse or doctor to stop them from becoming pregnant for several months) Abere: (Awon obinrin maa ngbe abere lati odo iokita/nos.se/Onise eto ilera, lati ma je ki won loyun fun osu pipe)	(1)	2

NO	QUESTIONS AND CODES	VALUE	SKIP
		YES	No
	d. Diaphragm, foam, jelly: (women place a cap, suppository or a cream inside them before sex). Awon nkan ti obinrin maa nfi si oju ara: (awon obinrin maa n fi nkankan ti odabi fila, tabi ipara si oju ara ki won to ni ibalopo pelu okunrin)	(1)	2
	e. Periodic abstinence: (couples avoid having intercourse on certain days of the month when the woman is more likely to conceive) Yiyera fun ibalopo fun saa kan: (oko ati iyawo le yera fun ibalopo ni awon ojo kan ninu osu; ni igba ti • seese ki oyun duro lara obinrin)	1	(2)
	f. Condom: (men use a rubber during sex) Nkan ti awon okunrin maa nlo lati fi bo ori nkan omo okunrin re: (awon okunrin maa nlo roba ni igba ti won ba nni ibalopo pelu obinrin)	1	(2)
	g. Foaming tablet/spermicide: (women place a suppository or cream inside them before sex) Oogun onikoro ti •birin maa nfi si oju ara ki won to ba okunrin lopo.	(1)	2
	h. Withdrawal: (the man is careful and pulls out before climax) Okunrin le sora ko o tete fa a yo ki o to to de oke ara re.	1	(2)
	i. Sterlization: (women or men have an operation which prevents them from having any more children) kii obirin yi ile omo pada tabi ki okunrin se nkan ti o fi le di ato lowo	(1)	2
	j. Traditional: (women use rings, bbelts charms etc.) Ogun adaye ba (lilo oruka, igbadi, ogun ogun)	(1)	2
	k. Other methods: (have you herd of any other ways or methods that women or men can use to avoid pregnancy, please tell me about them) Nje e ti gbo nipa awom ona tabi ogbob miran ti t'okunrin t'obirin le lo lati ma loyun (daruko re)?		
402	Have you ever used any of these methods? Nje o ti lo okan ninu awon eto yi ri? Yes No	1 (2)	410
403	IF YES, which ones have you used: (record verbatim) Ti • ba je beeni, awon wo ni o ti lo ri?		
Q404	Have you been using method currenfly or the last 2 years? Nje e tu n lo eto yi deede tabi binkan bi odun meji sehin. Yes No	(1) 2	406

405 Could you please give me details of the methods you have used in the last 2 years
E jowo e fun minni alaye lekunrere bi e se nlo eto yi fun. inkan bii odun meji sehin.

DATE	METHOD	METHOD	METHOD	METHOD	METHOD
1989					
OCT.					
NOV.					
DEC.					
1990	////	////	////	////	////
JAN.					
FEB.					
MAR.					
APR.					
MAY.					
JUNE.					
JULY					
AUG.					
SEPT.					
OCT.					
NOV.					
DEC.					
1991	////	////	////	////	////
JAN					
FEB.					
MARCH					
APRIL					
MAY					
JUNE					
JULY					
AUG.					
SEPT.					
OCT.					
NOV.					
DEC.					

(INDICATE PERIOD WITH I BAR-LINE)

406 Why did you discontinue the last method you used?
Kini idi ti e ko fi lo eto yii mo?
(The METHOD PREVIOUS TO THAT PRESENTLY USED FOR CORRENT USERS).

Discharge	1
Discomfort or pain in abdomen	2
Wished to be pregnant	3
Abnormal bleeding	4
Partner disliked method	5

NO	QUESTION AND CODES	VALUE	SKIP
407	CHECK 403 IF NEVER USED IUD GO TO 409 When was the IUD inserted and when was it removed? Nigbawo ni won fi nkan ti won man nki si oju ara yii sii ati pe nigbawo ni won yo.? a. Insertion — Month Year b. Removal — Month Year c. Not removed	-- -- -- -- 88	409
408	If IUD REFERRED TO IN 406 GO TO, 409 Why did you stop using the IUD? Kini idi ti e ko fi lo mo? Discharge Discomfort or pain in abdomen Abnormal bleeding Wished to be pregnant Partner disliked method Fear of side-effects End of relationship Other	1 2 3 4 5 6 7 8	
409	CHECK 403 IF NEVER USED CONDOM GO TO 410 Why did/do you use the condom? (Probe what are the good/bad things about the condom) Kini idi ti e fi gba ki oko re ma lo roba (condom) fun o?		
410	When you have/periods what type of sanitary protection do you use? Ti o ba nse nkan osu re, kini o sa ba ma a nlo? Rag or cloth Commercial sanitary towel (pad) Toilet tissue Tampon Other (specify)	1 2 3 4 5	
411	Have you ever used preparations of any kind in the vagina? Yes No	1 2	501
412	What preparations d you use?		

NO	QUESTIONS AND CODES	VALUE	SKIP
	Douche	1	
	Vaginal suppositories	2	
	Vaginal medications	3	
	Traditional Medicines	4	
	Other (specify)	5	
501	SECTION FIVE How long would you expect it to make a woman to become pregnant. O maa nto igba wo ki obinrin to loyun gegebi oroo yin a. After the started trying to have a baby Lehin igba ti o ba ti ngbiyanju lati bi omo (Record berbatim) ....after a month..... ..... b. After she has had a baby? Lehin igba ti o ba ti bi omo? (Reconrd verbatim) ....3yrs..... CHECK 203 IF RESPONDANT NEVER HAD SEXUAL INTERCOURSE GO TO 556.		
502	Have you ever tried to get pregnant and taken a longer time than you expected to conceive? Nje e ti gbiyanju a ti loyun ri, ti o se gba o ni asiko ju bi o ti ye lo? Yes No	(1) 2	509
503	When many times has this happened? O to igba melo ti eleyii ti sele? Number of times	01	
504	When did you last start experiencing problems in conceiving? Igba wo ni eri ni isoro lati loyun kehin? Month Don't know month Year Don't know year	-- 98 -- 98	
505	How long did you/have you been try(ing)? O to igba wo ti o fi gbiyanju/ti e ti ngbiyanju? Months Years	12 months --	
506	Why do you think you didn't/haven't conceived (d)? Kini id ti erope eekofi ni oyun? ....She doesn't know.....		9/5

NO	QUESTIONS AND CODES	VALUE	SKIP
507	Have you saught any help or treatment of any kind for this problem (including help or medicines from members of yo family, friends, neighbours, drug sellers, traditional healers, spiritual healers, clinics etc)? Nje, o bi wa iranlowo tabi iwosan fun isoro, yi? (bii iranlowo tabi oogun, babalawo/onisegun enia dudu/adahunse oniwosan emi, ile iwosan kekere lati odo awon ara ile e re, ore aladugbo awon ti o nta oogun, ati beebee lo) Yes No	(1) 2	 509
508	IF YES, Please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, IST 2ND, 3RD ETC. Ti o baje pe 'Beni' jowo so fun mi ibi ti o koko ti lo gba iwosan; ti o ba ju eyo kan, to o bi o se ti se gba iwosan naa bi 1st, 2nd, 3rd etc. WHO CONSULTED — ORDER CONSULTED a. Self b. Relative c. Friend d. Traditional doctor ..... (1) ..... Babalawo e. Elewe omo f. Market drug seller g. Spiritual healer/Aladura h. Pharmacist i. Patent [illegible] j. Private doctor k. Government clinic/hospital l. Other (specify)		
509	Have you ever had a pregnancy that was not carried to term? Nje o ti loyun ri ti o baje? Yes No	1 (2)	 518
510	How many times has this happened? O to igba melo ti eleyi ti sele? Number of times	--	
511	When did this (last happen)? Igba wo ni o sele gbehin? Month Year	-- --	
512	How did you loose the pregnancy, what problems did you have? Bawo ni oyun na se pa, kini awon isoro wo ni eni? (Record verbatim) IF INDUCED ABORTION GO TO 519 _____ _____ _____		

NO	QUESTIONS AND CODES	VALUE	SKIP
513	When you first realised something was wrong did you get any help or treatment of any kind (including help or medicines from members of your family, friends, neighbours, drug sellers, traditional healers, spiritual healers clinics etc)? Ni igba ti, akoko rii pe, nkan ko se deede, nje o wa iranlowo tabi iwosan kankan (bii iranlowo tabi oogun lati odo awon ara ile e yin, ore aladugbo, awon ti o nta oogun, Babalawo/Onisegun enia dudu/ Aladura, ile iwosan kekere ati beebee lo)		
	Yes	1	
	No	2	
514	IF YES, Please tell me where you firstgot help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1ST, 2ND, 3RD ETC. Ti o baje pe 'Beni' jowo so fun mi ibi ti o koko ti lo gba iwosan; ti o ba ju eyo kan, to o bi o se ti se gba iwosan naa bi 1st, 2nd, 3rd e.t.c.		
	WHO CONSULTED — ORDER CONSULTED		
	a. Self		
	b. Relative		
	c. Friend		
	d. Traditional doctor		
	e. Elewe omo		
	f. Market drug seller		
	g. Spiritual healer/Aladura		
	h. Pharmacist		
	i. Patent Medicane Store		
	J. Private doctor		
	k. Government clinic/hospital		
	h. Other (specify)		
515	After you lost the baby did you develop any of the following problems: Lehin igba ti oyun naa baje ta, se okan ninu awon wonyi s' yin?	YES NO	
	a. Fever within 2 weeks	1 2	
	b. heavy bleeding with clots and pieces	1 2	
	c. Abnormal vaginaldischarge	1 2	
	d. Severe lower abdominal pain	1 2	
	e. Other (specify)	1 2	
	IF NO TO Q515 a,b.c.d. AND e Go To 518.		
516	Did you seek any help or treatment of any kind for this problem (including help or medicines from members of your family, friends, neigbours, drug sellers, traditional healers, spiritual healers, clinics etc)? Nje o bi wa iran lowo tabi iwosan fun isoro yi? (bii iranlowo tabi oogun lati odo awon ara ibe e re, ore, aladugbo, awon ti o nta oogun, babalawo/onisegun enia dudu/adahunse oniwosan emi, ile iwosan kekere ati beebee lo).		
	Yes	1	
	No	2	518
517	IF YES, Please tell me where you first got help, IF more than one list in order in which they were consulted, 1st, 2nd, 3rd etc.		
	WHO CONSULTED — ORDER CONSULTED		
	a. Self		
	b. Relative		
	c. Friend		
	d. Traditional doctor		

NO	QUESTIONS AND CODES	VALUE	SKIP
	e. Elewe omo ..... f. Market drug seller ..... g. Spiritual healer/Aladura ..... h. Pharmacist ..... i. Patent medicine store ..... j. Private Doctor ..... k. Government clinic/hospital ..... h. Other (specify)		
518	Some women have something done, either by a doctor or some other way to end a pregnancy early. Has this ever been the case with you?. Awon obinrin miran maa nse nkankan boya nipase dokita tabi lona miran lati da oyun ti ka i ti dagba duro. Nje eleyii ti sele si yin ri? But the preg did'nt come down Yes No	(1) 2	527
519	How many times have you tried to end a pregnancy? O to igba meloo ti e ti gbiyanju lati da oyun duro? Number of times	01	
520	How old were you when you (last) tried to end a pregnancy? Oma odun meloo ni yin ni igba ti e gbiyanju lati da oyun duro Age in years	18	
521	How many months pregnant were you when this happened? Oyun yii to osu melo nigba ti eleyi sele? Months	02	
522	Where did you seek help to end the pregnancy and what was the method used? Nibo ni o ti gbe iranlowo lati da oyun yi duro ki si ni ona ti o gba? (If sought more than one source of help list in order) (Methods probe: suregery, drugs, massage, home remedies, traditional methods, introducing an object into the vagina etc.)		

	WHO CONSULTED	ORDER	METHOD
a.	Self		
b.	Relative		
c.	Friend		
d.	Traditional doctor	1	Herbs prepared by Baba Idun
e.	Elewe omo		
f.	Market drug seller		
g.	Spiritual healer/Aladura		
h.	Pharmacist		
i.	Patent Medicine store		
j.	Private doctor		
k.	Government clinic/hospital		
l.	Other (specify)		

523	Was it successful in ending the pregnancy? Nje eleyii da oyun naa duro? Yes No	1 2	

NO	QUESTIONS AND CODES	VALUE	SKIP
524	In the 2 weeks after the abortion, did you develop any of the following problems? Ose meji larin oyun sise naa, se okan ninu awon nkan wonyi se o?		
		YES	NO
	a. Fever and shivering	(1)	2
	b. Heavy bleeding with clots and pieces	(1)	2
	c. Abnormal discharge	1	(2)
	d. Severe lower abdominal pain	(1)	2
	e. Other (specify)	1	(2)
	IF NO to Q524 a,b,c,d, and e GO TO Q527.		
525	Did you seek any help or treatment of any kind of this problem (including help or medicines from memebers of your family, friends, neigbours, drug seller, traditional healers, spiritual healers, clinics etc)? Nje o wa iranlowo tabi iwosan kankan fun iru isoro yi (bii iranlowo tabi oogun, babalawo/onisegun enia dudu/adahunse oniwosan emi, ile iwosan kekere at beebee lo)	2	
526	IF YES, please tell me where you first got help, IF more than one list in order in which they were consulted, 1st, 2nd, 3rd etc.		
	WHO CONSULTED — ORDER CONSULTED		
	a. Self		
	b. Relative		
	c. Friend		
	d. Traditional doctor ..... (1) ..... She went her own the conventional		
	e. Elewe omo		
	f. Market drug seller		
	g. Spiritual healer/Aladura		
	h. Pharmacist		
	i. Patent Medicine store		
	j. Private doctor		
	k. Government clinic/hospital		
	h. Other (specify)		
527	I would just like to make sure that I have everything clear: How many times have you been pregnant? Mo fe rii daju wipe, gbogbo nkan ti a nbere ni o yanju: O to igba melo o ti oti loyun ri?		
	Number of times	03	—
	Don't know (98)	98	
	IF PREGNANCIES = (0;0) GO TO 556		
528	Starting with the first, how did each of your pregnancies end?		

4yrs

Pregnancy	Year	Outcome
1st	~~85~~ 85	Life Cmath
2nd	~~88~~ 88	Life bmath
3rd	~~90~~ 90	Life birth
4th		
5th		
6th		
7th		

91 5 86

If there are NO LIVE BIRTHS AND NO STILL BIRTHS GO TO QUESTIONS 556

59 If the respondant is CURRENTLY PREGNANT with her FIRST PREGNANCY go to Question 556

Question 529 to ~~555~~ 555 refer to the LAST pregnancy CARRIED TO TERM.

529 During your last pregnancy carried to term did you have any antenatal visit?
Ni igba ti e loyun kehin nje e lo fun ipade alaboyun?

Yes (1)
No 2 → 532

530 Where did you go for these antenatal visits?
Nibo ni e ti lo fun ipade alaboyun?
NOTE CHURCH, HOSPITAL CLINIC NAME:

Ocedh clinic

Government hospital (1)
Private hospital 2
Traditional birth attendent 3
Traditional healer 4
Own home 5
Church maternity centre 6
Other (specify) 7

530a Did you go to antenatal clinic because you felt ill yes 1 no 2

531 Who did you see?
Tani o ri?
PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED

Doctor 1
Nurse/Midwife ..... (2)
Traditional birth attendent 3
Traditional healer ... 4
Other (specify) 5

532 During your last pregnancy carried to tern were you given an injection in the arm to prevent the baby from getting tetanus, that is, convulsions after birth?
Ni igbati e wa ninu oyun ti e ni kehin Nje won fun yin ni abere ajesara lati deni giri lara ome?

Yes (1)
No (2)
Don't know (98) 98

533 During your last pregnancy can you remember having any of the following problems?
Ni igba ti e loyun kehin nje o le ranti boya o ni okan ninu awon isoro wonyi?

	YES	NO
a. Heavy bleeding	1	2
b. Fits	1	2
c. Swelling of hands and/or feet	1	2
d. Fever and shivers	1	2
e. Frequent urination and burning sensation	1	2
f. Persistant headache	1	2
g. More than usual discharge	1	2
h. Other problems (specify)	1	2
.....		

IF NO to Q533 a,b,c,d,e,f,g, AND h GO to Q539

IF YES to g GO to Q534 IF NO To g GO to Q537.

534 What colour was the discharge?
Iru awo wo ni dida lati oju ara naa ni?
(Record verbatim and then code)
.....
.....

Clear (colourless)	1
White (similar to milk	2
Yellowish or greenish	3
Bloody	4
Other (Specify)	5

535 What consistency did the discharge have?
Bawo ni dida na tiri lowo?
(Record verbatim)
.....
.....

536 Did the discharge have an unpleasant odour?
Se dida lati oju ara ni oorun ti ko dara?

Yes	1
No	2

537 Did you seek any help or treatment of any kind for this problem (including help or medicines from members of your family, friends, neighbours, drug se sellers, traditional healers, spiritual healers, clinics etc)?
Nje, o bi wa iranlowo tabi iwosan fun isoro ti yi (bii iranlowo tabi oogun latii odo awon ara ile e re ore, aladugbo, awon ti o nta oogun, babalawo/onisegun enia dudu/aladura, ile iwosan kekere ati beebee lo)

Yes	1	
No	2	539

538 IF YES, please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1ST, 2ND, 3RD ETC.
Ti o baje pe 'beeni' jowo so fun mi ibi ti o koko ti lo gba iwosan; ti o ba ju eyo kan, too bi o se ti lo gba iwosan naa ti 1st, 2nd, 3rd etc.

	WHO CONSULTED	ORDER CONSULTED
a.	Self	
b.	Relative	
c.	Friend	
d.	Traditional doctor	
e.	Eleve omo	
f.	Market drug seller	
g.	Spiritual healer/Aladura	
h.	Pharmacist	

	i. Patent Medical store		
	j. Private doctor ..... (1) ..... Doctor		
	k. Government clinic/hospital		
	l. Other (specify)		
539	Where did you deliver the baby of your last pregnancy? Nibo ni e ti bi omo ti e loyun re kehin? NOTE CHURCH, HOSPITAL CLINIC		
	Government hospital	1	
	Private hospital	2	
	Church run maternity centre	(3)	
	Traditional home	4	
	own home	5	
	Home of relative or friend	6	
	Other (specify)	7	
540	Who assisted with the delivery? Tani o gbebi?		
	Doctor	1	
	Nurse/Midwife ...	2	
	Traditional healer	3	
	Traditional birth attendant	4	
	Own home	5	
	Relative or friend	6	
	Other (specify) ... mad.wife..un..the.. mission	(7)	
541	Was the delivery normal? Nje bibi omo lowooro wo? (koo sile bi o ti se apejuwe ibimo)		
	Normal	(1)	
	Breech	2	
	Caesarean	3	
	Instrumental (forceps, vacuum)	4	
	Other (specify)	5	
542	Did you have any tear/cut during delivery? Nje won ge bi ti omo yio gba jade?		
	Yes	1	
	No	(2)	544
543	Was this repaired by someone? IF YES, by who? Nje enikankan ran ibi yi pada? ti o ba je beeni, tani o ran?		
	Not repaired	1	
	Doctor	2	
	Nurse/Midwife	3	
	Traditional healer	4	
	Traditional birth attendant	5	
	Other (specify)	6	

544	Did you experience any of the following difficulties at the birth: N jee ni okankan ninu awon isoro wonyi ni igba ti e nbimo:		YES	NO
	a. Excessive bleeding (beyond 2 days) 3rd Week (Sunday)		1	(2)
	b. Labour (more than 48 hours)		(1)	2
	c. High fever		(1)	2
	d. Fits or convulsions		1	(2)
545	During labour did you have any problems for which special help was needed?			

546 What was the problem? (Record verbatim)
Kini isoro yi?
.....
.....
.....
.....

547 Who was called for help?
Tani e pe fun iranlowo?
.....
.....

548 Was the baby born with an eye infection (sticky eyes)?
Se omo yi ni isoro pelu oju re/oju re nase le lekileki ni igba ti o bii? Yes 1
But the baby ara vomiting No 2

549 In the 6 weeks following your delivery did you have any of the following problems?
ose mefa larin igba ti o bimo, nje o ni okan lara awon isoro yonyi?

	YES	NO
a. Heavy bleeding with clots and pieces	1	2
b Fever and shivers	1	2
c. Fits/convulsions	1	2
d. Unusually heavy discharge ...	1	2
e. Other (specify)	1	2
.....		

IF NO to Q549 a,b,c,d, and e Go to Q555
IF YES to d GO to 550, IF NO to D GO to 553.

550 What colour was the discharge?
Iru awo wo ni dida lati oju ara naa ni?
(Record verbatim and then code)
.....
.....

Clear (colourless)	1
White (similar to milk)	2
Yellowish or greenish	3
Bloody	4
Other (specify)	5

551 What consistency did the discharge have?
Bawo ni dida na tiri lowo?
(Record verbatim)
.....
.....

552 Did the discharge have an unpleasant odour?
Se dida yi ni oorun ti ko dara?

Yes	1
No	2

553 Did you seek any help or treatment of any kind for this problem (including help or medicines from members of your family, friends, neighbours drug sellers, traditional healers, spiritual healers, clinics etc?)
Nje e bi wa iran lowo tabi siwosan fun isoro yi (bii iranlowo tabi oogun lati odo awon ara ile e re, ore, aladugbo, awon ti o nta oogun, babalawo/anisegun enia dudu/aladura, ile iwosan kokoro ati bebee lo)

554 IF YES, when got help, if more than one list in order in which they were consulted 1st, 2nd, 3rd etc.

	WHO CONSULTED	ORDER CONSULTED
a.	Self	
b.	Relative	
c.	Friend	
d.	Traditional doctor	
e.	Spiritual healer/Aladura (V) prayer	
f.	Pharmacist	
g.	Market drug seller	
h.	Private doctor	
i.	Goverment clinic/hospital	
j.	Other (specify)	

555 How long after the delivery did you return to your normal household chores?
O to igba wo lehin ibimo ki o to bere si ni sise ile ti o ma nse tele?

Days	--
Weeks	--
Months	02

556 Have you ever had any surgical operations on your reproductives?
Nje eti se ise abe fun o ri ni ibi ile ibimo re?

Yes	1
No	(2) → 560

557 What kind of operation(s) did you have?
Iru ise abe wo ni?
(Probe: why had operation, what was involved etc. Record verbatim)

.....
.....
.....
.....
.....
.....

558 Where was it carried out?
Nibo ni wonti se ise abe naa?
(Record name of hospital/clinic)
.....

559 When didyou have this operation?
Igba wo ni won se iseabeyi fun yin?
(If more than one operation list by date, Type and location on backsheet)

Month	--
Don't know month	98
Year	--
Don't know year	98

560 Have you been circumcised?
Nje e se ikola?

Yes	(1)
No	2

SECTION SIX

We are trying to find out all we can about women's health in Ado-Ekiti, to do this we have to ask some more questions about your reproductive health in the last 3 months.
A ngbiyanju lati wadi nipa eto ilera awon obinrin ni ilu, Ado-Ekiti. Lati le se eyi, a nilati beere awon ibeere sii nipa eto ibimo o re ni osu meta sehin.

601 How old were you when you had your first period?
O to omo odun melo o ki o to vere si ni se nkan osu?

Age in years ... 12
Don't know (98) ... --

602 Are you still menstrating?
Se o si nse nkan osu?

Yes ... (1) → 605
No ... 2

603 Why are you not having your periods?
Kilo de ti o ki fii nse nkan osu?

Menopause ... 1
Pregnancy ... 2
Breastfeeding ... 3
Contraception ... 4
Other (specify) ... 5
Don't know ... 98

604 When did your last menstrual period end?
Igba wo ni e se nkan osu kehin?

Month ... --
Don't know month ... 98
Year ... --
Don't know year ... 98

605 How long do your periods last?
Ojo melo ni e fi nse nkan osu?

Days ... 05

606 Many women at some time find that their periods are irregular or that the flow changes and become lighter or heabier. Have your periods been regular during the last 3 months?
Ni igba miran opolopo obirin maa nri wipe nkan osu won, nse segesege tabi ki o yipada, yala ki o ma to nkankan tabi ko po si. Nje tire n wa dede bi osu meta sehin bayi.

Yes ... 1
No ... (2)
More reguent ... a
Less frequent ... b
Irregular ... c

607 Has it been heavier, lighter or the same?
Nje o ti po si dinku, tabi o ri bakana?

same ... (1)
Heavier, with clots ... 2
Heavier, without clots ... 3
Lighter ... 4

IF YES TO Q6060 & 'SAME' TO Q607 GO TO 612.

608 Are/were you concerned by this change?
Nje iyato yi fun o ni itara?

Yes, Very	1	610
Yes, a little	2	610
No	3	

609 Why are/were you not concerned by this change?
Kini id ti e ko ri ni itara

_____

_____

_____

610 Have you sought any help or treatment of any kind for this change in your periods (including help or dedicines from members of your family, friends, neighbours, drug sellers, traditional healers, spiritual healers, clinics etc)?
Nje o ti wa iranlowo tabi iwosan fun iyipada ni nkan osu re (bii iranlowo tabi oogun lati odo awon ara ile re, ore aladugbo, awon ti o nta oogun, babalawo/onisegun enia dudu aladura, ile iwosan kekere ati beebee lo)

Yes	1	
No	2	612

611 IF YES, please tell me where you first got help, OF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd etc.
Ti o baje pe 'beeni' jowo so fun mi ibi ti o koko ti lo gba iwosan; ti o ba ju eyo kan, too ti o se ti se gba iwosan naa ti 1st, 2nd, 3rd etc.

	WHO CONSULTED	OTHER CONSULTED
a.	Self	
b.	Relative	
c.	Friend	
d.	Traditional doctor	(1) Herb
e.	Elewe omo	
f.	Market drug seller	
g.	Spiritual healer/Aladura	
h.	Pharmacist	
i.	Patent Medicine store	
j.	Private doctor	
k.	Government clinic/hospital	
l.	Other (specify)	

611a Have you had pain with menstruation in the last 3 months?
Nje inu ma nroo, ni igba ti o nse nkan osu ni bii osu meta sehin?

Yes	1	
No	2	612

611b Do tou normally get pain with mestruation?
se inu maa nro o ti o ba nse nkan osu?

Yes	1	
No	2	611d

611c Has this become worse in the last 3 months?
Nje eleyi ti po si, ni bii osu meta sehin?

Yes	1	
No	2	612

611d How severe is/was the pain?
Bawo ni inu riro yi se po to?

Could not continue normal activities	1
Could only continue normal activities with difficulty or with medicatbon	2
Could continue normal activities	3

612 Have you been getting a deep internal abdominal pain during intercourse in the last 3 months?
Fun bii su meta sehin nje inu maa ndun o ti o ba nmi ibalopo pelu okunrin?

Yes	1	
No	2	617

613 Are/were you worried by this pain?
Se leyi ba o lenu?

Yes, very	1	615
Yes, a little	2	615
No	3	

615 Have you sought any help or treatment of any kind for this pain (including help or medicines from members of your family, friends, neighbours, drug sellers, traditional healers, spiritual healers, clinics etc)?
Nje o ti wa iranlowo tabi iwosan fun iru inu riro bayi (bii iranlowo tabi oogun, babalawo/Onisegun eniа dudu/aladura, ile iwosan kekere ati beebee lo).

Yes 1
No 2 → 617

616 IF YES, please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd etc.
Ti o baje pe 'beeni' jowo so fun mi ibi ti o koko ti lo gba iwosan; ti o ba ju eyo kan, too bi • se ti se gba iwosan naa ti 1st, 2nd, 3rd etc.

	WHO CONSULTED	ORDER CONSULTED
a.	Self	
b.	Relative	
c.	Friend	
d.	Traditional doctor	
e.	Elewe omo	
f.	Market drug seller	
g.	Spiritual healer/Aladura	
h.	Pharmacist	
i.	Patent Medicine store	
j.	Private doctor	
k.	Government clinic/hospital	
l.	Other (specify)	

617 Have you been urinating more frequently than usual at any time in the last 3 months?
Nje o ti nto welewele juti tele lo, ni igba kankan ni bii osu meta sehin?

Yes 1
No 2

I
618 Have you been having a burning sensation when urinating at any time in the last 3 months?
Nje idi ko maa jo o nigbati • ba nte ni igba kankan ni bii osu meta sehin

Yes 1
No 2

IF NO to Q617 and Q618 Go to Q625.

619 Have you been having pain on the sides of your back at the same time?
Nje ehin ko maa dun o ni iru igba bee?

Yes 1
No 2

620 Have you had fever/rigors (shivering) at the same time?
Nje iba tabi otutu ko ma a mu o ni iru igba bee?

Yes 1
No 2

621 Are/were you worried by these symptons?
Se eleyi jo o laya?

Yes, very ... 1 → 622

622 Why were/are you not worried symptoms?
Kini idi ti eleyi ko ri ja yin laya?
Because She feels there is no problem.

623 Have you saught help or treatment of any kind for these symptoms (including help or medicines from members of your family, friends, neighbours, drug sellers, traditional healers spiritual healers, clinics etc)?.
N je o ti wa iranlowo tabi iwosan kankan fun eleyi (bii iranlowo tabi oogun lati odo awon ara ile e re, ore, aladugbo, awon ti o nta oogun, babalawo/onisegun enia dudu/aladura, ile iwosan kekere ati beebae lo)

Yes	1	
No	2	625

624 IF YES, Please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd, etc.
Ti o baje pe 'beeni' jowo so fun mi ibi tii o ti koko ti lo gba iwosan; ti o ba ju eyo kan, too bi o se ti ose gba iwosan naa ti 1st, 2nd, 3rd etc.

WHO CONSULTED	ORDER CONSULTED
a. Self	1
b. Relative	
c. Friend	
d. Traditional doctor	
e. Elewe omo	
f. Market drug seller	
g. Spiritual healer/Aladura	
h. Pharmacist	
i. Patent Medicine store	
j. Private doctor	
k. Government clinic/hospital	
i. Other (specify)	

625 Have you had severe lower abdominal pain (not related to menstruation) or abnormal menstrual lower abdominal pain in the last 3 months?
Nje inu ti dun yin ganan (kii se igba ti o nse nkan osu) tabi isale inu dun yin ni ona ti o le gun ni nkan bii osu meta sehin?

Yes	1	
No	2	632

626 How severe is/was the pain?
Bawo ni irora yi se po to?

Could not continue normal activities	1
Could only continue normal activities with difficulty or with medication	2
Could continue normal activities	3

627 Have you had fever at the same time?
Nje iba se o ni igba na a?

Yes	1	
No	2	

628 Are/were you worried by this pain?
Se eleyi ja o laya?

Yes, very	1	630
Yes, a little	2	630
No	3	

629 Why are/were you not worried by the pain?
Kini id ti eleyi ko fi ja yin laya?

630 Have you sought any help or treatment of any kind for this pain (including help or medicines from members of your family, friends, neighbours, drug seller, traditional healers, spiritual healers, clinics etc)?
Nje o ti wa iranlowo tabi iwosan fun iru inu riro bayi (bii iranlowo tabi oogun lati odo awon ara ile e re, ore, aladugbo, awon ti o nta oofun, babalawo/onisegun enia dudu/adahunse oniwosan emi, ile iwosan kekere ati beebee lo)

	Yes	1
	No	2 → 632

631 If YES please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd etc.

631
a. Self .....
b. Relative .....
c. Friend .....
d. Elewe omo .....
e. Traditional doctor .....
f. Market drug seller .....
g. Spiritual healer/aladura .....
h. Pharmacist ..... Chemist for medicine
i. Patent Medicine store .....
j. Private doctor .....
k. Government clinic/hospital .....
l. Other (specify) .....

632 How would you describe a normal vaginal discharge?
Nje o le se alaye nkan ti o saba maa njade loju ara obirin? white and smells like
.....
.....
.....
.....
.....

633 Have you had any abnormal vaginal discharge (different from normal) during the last 3 months?
Nje nkankan ko maa jade loju ara re (ti o yato si ti tele)ni bii osu meta sehin?

	Yes	1
	No	2 → 643

634 How long have you had this discharge?
O to igba wo ti eleyi ti bere si ni sele?

Days	--
Weeks	--
Months	--

635 What colour is/was the discharge?
Iru awo wo ni o ni?
(Record verbatim and then code)
.....

Clear (colourless)	1
White (similar to milk)	2
Yellowish or greenish	3

636 What consistency does/did the discharge have?
Bawo ni dida na tiri lawo?
(Record verbatim)
.....
.....

637 Have you had any itching/irritation down below at the same time?
Nje abe ko maa yun o tabi ta o ni igba kabha?
Yes 1
No 2

638 Have you bad odour down below at the same time?
Nje aorunti ko dara ko maa jade lati abe ni igba kanna?
Yes 1
No 2

639 Are/were you worried by these symptoms?
se eleyi ja o laya?
Yes, very 1 → 641
Yes, a little ... 2 → 641
No 3

640 Why were/are you not worried by these symptoms?
Kini iditti eleyi ko fi ja yin laya?
.....
.....
.....

641 Have you sought help or treatment of any kind of these symptoms (including help or medicines from members of your family, friends, neighbours, drug sellers, traditional healers, spiritual healers, clinics etc)?
Nje o ti wa iranlowo tabi iwosan kankan fun eleyi (bii iranlowo tabi oogun lati odo awon ara ile e re, ore, aladugbo, iranlowo tabi awon ti o nta oogun, babalawo/Onisegun enia dudu/aladura ile iwosan kekere ati beebee lo)
Yes 1
No 2 → 643

642 If YES please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd etc. → 643

	WHO CONSULTED	ORDER CONSULTED
a.	Self	
b.	Relative	
c.	Friend	
d.	Elewe omo	
e.	Market drug seller	
f.	Traditional doctor	
g.	Spiritual healer/aladura	
h.	Pharmacist	
i.	Patent Medicine store	
j.	Private doctor	
k.	Government clinic/hospital	
l.	Other (specify)	

643 Have you had any sores or ulcers on your genital or anal area in the last 3 months?
Se e ni egbo/jejere ni ibi kolofin ara tabi ibi iyagbe ni bi osu meta sehin

644 How long have you had these sores ulcers?
o ti to igba wo ti o ti ni ebgo/jejere yi?

Days	--	
Weeks	--	
Months	--	

645 Are/were you worried by these sores uncers?
*Se egbo/jejere yi ja o laya?

Yes, very	1	647
Yes, allittle	2	647
No	3	

646 Why are/were you not worried these sores ulcers?
Kini idi ti awon egbo/jejere na ko fi ja yin laya?

647 Have you sought any help or treatment of any kind for these sores/ulcers (including help or medicines from members of your family, friends neighbours, drug sellers, traditional healers, spiritual healers, clinics, etc)?
Nje o ti wa iranlowo tabi iwosan kan ikankan ninu awon egbo/jejere ti (bii iranlowo tabi oogun lati odo awon ara ile e re, ore, aladugbo, awon ti o nta oogun, babalawo/onisegun enia dudu/ aladura ile iwosan kokere ati beebee lo)

Yes	1	
No	2	649

648 IF YES, Please tell me where you first got help, IF MORE THAN ONE LIST IN ORDER IN WHICH THEY WERE CONSULTED, 1st, 2nd, 3rd etc.
Ti o baje pe'beeni' jowo so fun mi ibi ti o ti koko ti lo gba iwosan; ti o ba ju eyo kan, too bii o se ti ose gba iwosan na ti 1st, 2nd, 3rd etc.

WHO CONSULTED	ORDER CONSULTED
a. Self	
b. Relative	
c. Friend	
d. Traditional doctor	
e. Elewe omo	
f. Market drug seller	
g. Spiritual healer/aladura	
h. Pharmacist	
i. Patent Medicine store	
j. Private doctor	
k. Government clinic/hospital	
i. Other (specify)	

649 CHECK 612, 625, 633, 643 IF ANSWER Is No TO ALL THESE QUESTIONS GO TO 654

649 CHECK 612, 625, 633, 643 IF ANSWER IS NO TO ALL THESE QUESTIONS GO TO 654

Have you had any of the following before?

	CONDITION	EVER HAD YES/NO	NO OF EPISODES	LAST EPISODE BEGANS MONTH/YR	LAST EPISODE ENDED MONTH/YR	TREATED YES/NO	WHERE TREATED*
a.	Deepinternal abdominal pain with intercourse	Yes					
b.	Severe lower abdominal pain or abnormal menstrual lower abdominal pain	Yes	Several time	1991	—	Yes	Bukalori
c.	Abnormal discharge	/					
d.	Sores/ulcers	/					

* a = Self, b = Relative, c=Friend, d=Traditional doctor, e=Elewe omo, f=Market drug seller, g=Spiritual healer/Aladura, h=Pharmacist, i=Patent medicine store, j=Private doctor, k=Government clinic/hospital, l=Other (specify).

650 I would like to ask you about the symptoms you have had in the LAST 3 MONTHS:

What do you think caused the symptoms you have told me about?
Kilo ro pe o fa awon nkan ti o so fun mi yi?

She does not know

651 Do you know any way in which you can avoid or protect yourself from getting these symptoms?
Nje e mo ona ti o le gba lati fi daabo bo ara re lati ina ni iru isoro yi?

She does not

ve you continued to have sexual relations with your partner wh; 1st you have
n experiencing these symptoms?
o ma ni ibalopo pelu oko/ore okunrin nigbati awon nkan wonyi ba nse o?

Yes 1
No (2)

654

211
05
85

, did you discontinue sexual relations?
cord verbatim)
i idi re ti iwo ko ri ni ibalopo pelu okurin mo?

There is nothing

I would like to ask you about some other conditions

CONDITION	EVER HAD YES/NO	NO OF EPISODES	LAST EPISODE BEGAN MON./YR.	LAST EPISODE ENDED MOT./YR.	SAVERITY*	SYMPTOMS	TREATMENT	OUTCOME
IBIBE NOTE 'Male' or 'female type	Yes	01	1990	—		Lower Abd pain and ahn	Herb from Elewe Omo	gone and Left 30 bad
LATANLATAN	No							
GONORRO	NO							
JABE JABE	No							
EDA	Yes	01	84	—		when she had sexe Spem Barbaka	Herb from Barbaka	gone
MARUN	Yes	no of time	91	even up till now		comes out dizziness and vomit	Herb from ekitiland	Still pe...
ATOSI	NO							

* 1=Could not continue normal, activities 2= continue normal ectivities only with diffifulty or medication
3=Could continue normal activities

IF NO TO ALL THE CONDITIONS (a-g) GO TO 658

655 What do you think caused this/these condition(s)?

She does not know

656. Do you know any way you can avoid or protect yourself from getting these conditions?

She does not know

657 Did you continue sexual relations with your partner whilst experiencing this/these condition(s).
IF NO, Why not?

for Eda — yes
— Iranran — yes
— Ifebe — NO — because it pains

658 Do you have any other problems in this area that I havent asked about?
Nje e ni isoro kankan ni adugbo yi ti a ki iti bore lowo yi?

There is nothing

659 CHECK 203 IF NO SEXUAL INTERCOURSE END HERE

How old were you when had sexual intercourse ofr the first time?
Ome odun melo ni yin ni igba ti o koko ni ibalopo pelu okunrin?

Age in years 15

660 How many sexual partners have you ever had?
Ore okunrin melo ni e ni ti o ni ibalopo pelu yin?

Number of partners 01

661 How many sexual partners have you had in the last 12 months (including your husband/regular partner)?
Ore okunrin melo ni o ni ni nkan bii osu mejila sehin, ti ti o je wipe o ni ibalopo pelu ti o ba ka oko yin wo won?

Number of partners 01

662 Have you had sexual intercourse in the past
Nje o ti ni ibalopo pelu okunrin nkan bi.

WEEK 1
MONTH 2
YEAR 3
2 YEARS (4)

Appendix 4

Ado-Ekiti survey household schedule

~~REPRODUCTIVE HEALTH SURVERY~~

HOUSEHOLD SCHEDULE

INDENTIFICATION

Plane Name IRONA

Zone Number 18

Address NO 39C

Dwelling Unit Number 89/39C

~~Household Number~~ 02

~~Description of Household Location:~~

UPSTAIRS	BACK	LEFT
GROUND FLOOR	FRONT	RIGHT

~~Further notes on location:~~

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	19/11/91			
INTERVIEWER	OLAIFA			
RESULT*	01			

* RESULT CODE:

1. COMPLETE
2. NOT AT HME
3. POSTPONED
4. REFUSED
5. PARTLY COMPLETE
6. OTHER (SPECIFY

USUAL RESIDENTS AND VISITORS	SEX	AGE	ETHNIC	RESIDENCE				ELIGIBLE WOMAN	RELATIONSHIPS	EDUC	CHILDREN UNDER 15
Please give me the names of persons who usually live in your household or are staying with you now, starting with the head of the household.	M/F	AGE IN YEARS	SEE CODES BELOW	DOES (NAME) usually sleep here?		Did (Name) sleep here last night?		When at home?	What is (NAME)'s relationship to the head of household? DESCRIBE FULLY	REF CODES BELOW	State whether natural parent live in hh or elsewhere (AS NAME OF FATHER In HH ... ELSEWHERE ...
				YES	NO	YES	NO				
Olugbenga Funke	F	24	01	✓		✓		03			
" Dosunu	M	31	01	✓		✓					
" Ebisola	F	6	01	✓		✓					
" Omoyemi	F	4	01	✓		✓					
" Temitayo	F	3	01	✓		✓					

ETHNIC GROUP CODES:
1 = YORUBA
2 = OTHER

AT HOME CODES
1 = MONING
2 = AFTERNCON
3 = EVETING

EDUCATION CODES
1.= NO SCHOOL
2.= PRY INCOMP.
3 = PRY COMPLETE
4.= SEC INCOMP.
5.= SEC COMPLETE
6.= HIGHER EDUC.
7 = OTHER
8 = DK.

TOTAL NUMBER OF ELLIGIBLE WOMEN -

Appendix 5

Ado Ekiti Event History

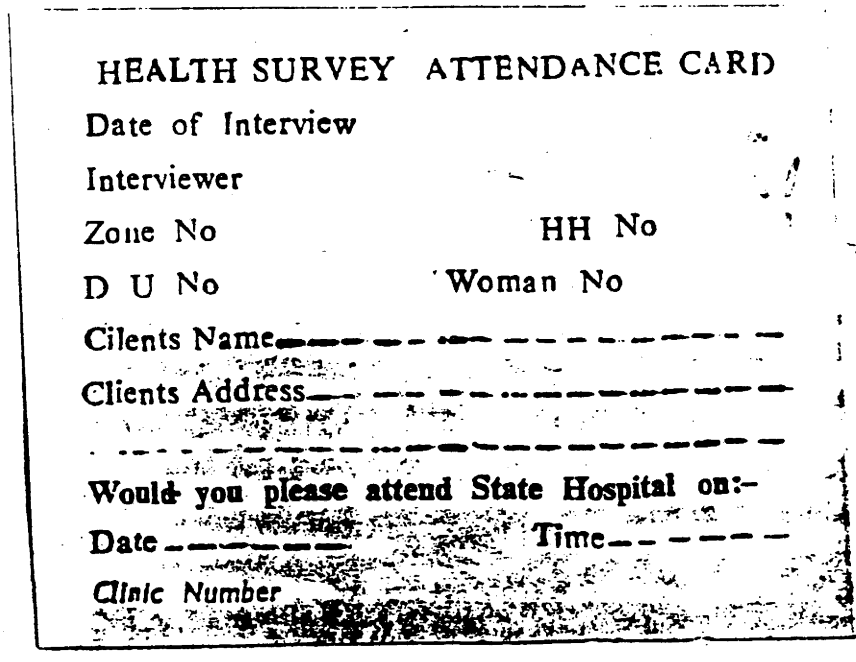
Event	Date
Influenza outbreak 'Lukuluku'	1918
First coming of motor vehicle to Ado Ekiti	1921
Archdeacon Dallimore in Ado-Ekiti	1929-1946
Foundation of Christ School	1930
Riots against Oba Aladesanmi II	1940
Shortage of salt	1940-1945
Famine 'Iyan Foworemi'	1945
Road from Ijigbo to Fajuyi tarred	1952
Building of Ile-Abiye Hospital	1953
Introduction of universal free primary education	1955
New 5,1 pound and 10,5 shilling currency notes	1959
Independence	1960
Opening of Ado-Ekiti water supply	1961
State of Emergency in Western Nigeria	1962
Army take over, Akinola and others killed	1966
Beginning of Nigerian Civil War	1967
End of Nigerian Civil War	1970
Introduction of Naira and Kobo	1973
Ondo State created	1976
Festac '77	1977
Operation Feed the Nation	1978
Shagari regime begins	1979
Free education in all levels	1980
Establishment of Ondo State University	1981
Shagari visits Ado-Ekiti	1982
Operation Wet E (Omoboriowo and Ajasin)	1983
Buhari regime begins (Idiagbon)	1984
WAI (War Against Indiscipline)	1985
MAMSER	1986
Death of Awolowo	1987
Death of Oba Adelabu	1988
Formation of SDP and NRC	1989

Reigns of Ado-Ekiti Oba

Oba Adewumi Agunsaye	1910-1937
Oba Aladesanmi II	1937-1983
Oba Adelabu	1983-1988
Oba Adejugbe	1990-

Appendix 6

Ado-Ekiti survey medical appointment card



HEALTH SURVEY ATTENDANCE CARD

Date of Interview

Interviewer

Zone No HH No

D U No Woman No

Cilents Name

Clients Address

Would you please attend State Hospital on:-

Date Time

Clinic Number

Appendix 7

Ado-Ekiti survey laboratory report schedule

REPRODUCTIVE HEALTH SURVEY
LABORATORY REPORT.

NO	TEST	VALUE
	IDENTIFICATION	
	D.U.NO.	
	H.H. NO	
	WOMAN NO	
	NAME ADDRESS	
	CLINIC NO.	
1.0	VAGINAL SPECIMENS.	
1.1	VAGINAL SMEAR Gram Stain	
	Bacterial vaginosis	
	Clue cells present	1
	Clue cells absent	2
	Observations - - -

	2ND Examination (~~after~~ 48 hrs)		
	Colonies absent		1
	Colonies present		2
	Description - - - - - - - - -		
	b. Gram stain of suspect colonies.		
	Gram negotive diplococci absent		1
	Gram negative diplococci present		2
	c. Oxidase test		
		Positive	1
		Negative	2
	d. Confirmatory test		
	Maltose	Positive	1
		Negative	2
	Lactose	Positive	1
		Negative	2
	Sucrose	Positive	1
		Negative	2
	Glucose	Positive	1
		Negative	2
2.3	Cervical swab (2): Chlamydia		
	Clearview test positive		1
	Clearview test negative		2
3.0	SERUM.		
3.1	RPR	Positive	1
		Negative	2
3.2.	TPHA	Positive	1
		Negative	2

Appendix 8

Ado-Ekiti antenatal clinic survey questionnaire

ANTENATAL PATIENTS - CLINICAL HISTORY

STUDY NO: A 20

DATE OF VISIT 20/01/92

O.P. NUMBER

SURNAME

FIRST NAME

ADDRESS

DATE OF BOOKING

DURATION OF PREGNANCY AT BOOKING

1.1 AGE

1.2. AGE AT MARRIAGE 1.3 l.m.p.

1.4 ETHNICITY

1.5. OCCUPATION 1.6. E.D.D.

1.7 RELIGION

1.8. EDUCATION

1.9 HUSBANDS AGE.

1.10 NO OF WIVES -

1.11 HUSBANDS OCCUPATION

1.12 HUSBANDS EDUCATION

1.13 SYMPTION/SIGNS

1.14 DURATION OF MAIN SYMPTONS (DAYS)

1.15 CURRENT MEDICATION (2WEEKS)

1. NONE
2. Antibiotic
3. Other - - - - - - - - (specify)
4. Antibiotic and other (specify) - - - - - -

1.16. CONTRACEPTION

EVER USE: Method(s)

1.17

1.17 TYPE OF SANITARY PROTECTION USED:

1. Rag or cloth
2. Sanitary towel (pad)
3. Toilet tissue
4. Other (specify) -- - - - - -

1.18 AGE AT 1st SEXUAL INTERCOURSE -

1.19 NUMBER OF SEXUAL PARTNERS IN LAST YEAR -

1.2. NUMBER OF SEXUAL PARTNERS IN LAST 3 MONTHS - 1

(2.0) OBSTERIC HISTORY

(2.1) Gravida/Para

(2.2) PREGNANCIES

	AGE	OUTCOME (live birth/still birth/ Spontaneow abortion/induced abortion)
1St		
2ND		
3RD		
4TH		
5TH		
6TH		
7TH		
8TH		
9TH		
10TH		

(2.3) Children

	Date of birth	Alive/Dead	Age at death	Cause of death.
1ST				
2ND				
3RD				
4TH				
5TH				
6TH				
7TH				
8TH				
9TH				
10TH				

(2.4) COMMENTS:

(3.0) MEDICAL HISTORY:

REPRODUCTIVE HEALTH SURVEY

CLINICAL EXAMINATION RECORD

QUESTION NUMBER	QUESTIONS/CODES	VALUE
	IDENTIFICATION	
	INTERVIEWER	
	DATE OF INTERVIEW	
	D.U. NO.	
	H.H. NO	
	WOMAN NO.	
	NAME	
	ADDRESS	
	CLINIC NO.	
1.0	GENERAL EXAMINATION	
1.1	Temperature (^{o}c)	
1.2	Weight (kg)	
1.3	Height (cm)	
1.4	Blood pressure	
2.0	ABDOMINAL EXAMINATION	
2.1	Liver Enlargement	
	YES	1
	No	2
	No information	9
2.2	Splenic Enlargement	
	Yes	1
	No	2
	No information	9
2.3.	Abdominal tenderness	
	a. Right upper	
	Yes	1
	No	2
	No information	9
	b. Left upper	
	Yes	1
	No	2
	No information	9
	c. Right lower	
	Yes	1
	No	2
	No information	9
	d. Left lower	
	Yes	1
	No	2
	No information	9
	e. Supra pubic	
	Yes	1
	No	2
	No information	9

2.4	Abdominal Masses.		
		a. Right Upper	
		Yes	1
		No	2
		No information	9
		b. Left upper	
		Yes	1
		No	2
		No information	9
		c. Right lower	
		Yes	1
		No	2
		No information	9
		d. Left lower	
		Yes	1
		No	2
		No information	9
		e. Supra pubic	
		Yes	1
		No	2
		No information	9
3.0.	BIMANUAL EXAMINATION		
3.1	Vulval lesions.		
		Yes (specify) - - - - -	1
		No	2
		No information	9
3.2.	Cervical motion tenderness		
		Yes	1
		No	2
		No information	9
3.3.	Adnexal tenderness		
		a. Right Yes	1
		No	2
		No information	9
		b. Left Yes	1
		No	2
		No information	9
3.4.	Uterine size		
		Normal	1
		Enlarged	2
		No information	9
3.5	Uterine mobility		
		Mobile	1
		Fixed	2
		No information	9
3.6	Adnexal masses		
		a. Right	
		Present	1
		Absent	2
		No information	9
		b. Left	
		Present	1
		Absent	2
		No information	9

4.0 SPECULUM EXAMINATION

4.1 Discharge

Absent	1
Present in vagina but cervical os is lclear	2
Present at cervical OS and vagina	3
No information	9

a. Colour

Clear/transparent	1
Whilte (Milky)	2
Yellow/Green?	3
Bloody	4
Other (specify) - - - - - - - - -	5
No information	9

b. Consistency

Mucoid	1
Mucopurulent	2
Milky	3
Papacheesy	4
Other (specify) - - - - - - - - -	5
No information	9

c. Character

Thick	1
Thin	2
Other (specify) - - - - - - - - -	3
No infomation	9

d. Amount

Scanty	1
Moderate	2
Abundant	3
No information	9

4.2 Vaginal lesions.

Yes (speeify) -	1
No	2
No information	9

4.3 Cervix ectropion/erosion

Yes %	1
No	2
No information	9

4.4. Vaginal prolapse

Cystocele	1
Rectocele	2
Absent	3
No information	9

4.5 Uterine prolapse

1st degree	1
2nd degree	2
3rd degree	3
Absent	4
No information	9

5.0 Swab/PH/Whiff Tests

5.1 Swab Test

Negative	1
Positive	2
Don't know	8

5.2 PH TEST

Positive	1
Negative	2
No information	9

5.3 Whiff Test

6.0 COMMENTS:

Unspecified

6.1 Preliminary diagnosis:

Normal Conditions

6.2 Post laboratory test diagnosis:

6.3 Treatment:

6.4 Follow-up.

Appendix 9

Clinical and laboratory diagnosis and procedures

Laboratory specimen collection

Each specimen must be marked with the patients study number, the clinic registration number, the date of the visit and where the specimen was taken from - vagina or cervix.

1. Insert speculum, avoid use of antiseptics, analgesics and lubricants. The speculum can be moistened with warm water.

2. See if there is any discharge in the vagina, make a mental note of colour, volume, consistency and odour and whether the discharge is adhering to the wall of the vagina.

3. Obtain vaginal specimen, swab the posterior vaginal fornix for a few seconds and return swab to labelled container. Do not forget to complete question 4.1 on the examination report form after having completed the speculum examination.

4. Wipe the face of the cervix off with clean dry cotton 3 times. Decide whether there is any discharge coming from the cervix, make a mental note of its colour.

5. Decide whether there is cervical ectropion.

6. Obtain cervical specimens, as you do so see whether there is any friability.

Insert *Swab One* 2-3 cm in the cervical canal. Rotate the swab for 5-10 seconds to permit absorption of the exudate. Withdraw the swab avoiding contact with the vaginal mucosa.
Look at the colour on the swab when you take it out of the cervix. If it is yellow or green write '2' (positive) for question 5.1 on the examination form. If the swab is still white write '1' (negative) for question 5.1. If it is so bloody you cannot tell the colour write '8' for question 5.1.
Roll the swab on a clean slide and allow to air dry. Insert swab into the *Swab One* plastic sleeve containing Amies transport medium taking care not to rub the swab against the side of the container.

Insert *Swab Two* 2-3 cm in the cervical canal. Rotate swab for 10-30 seconds. Withdraw the swab avoiding contact with the vaginal mucosa. Replace the swab in the

plastic sleeve of the swab holder taking care not to rub it against the sides of the container.

7. When you have finished the speculum examination remove the speculum and touch a pH paper strip on op of the withdrawn speculum. Read the colour change immediately and record in question 5.2 on the examination report form.

8. Place 1 or 2 drops of 10% KOH on the blade of the speculum in the remaining discharge. Hold it close to the nose immediately to detect the 'fishy' amine odour (a positive test will quickly become negative upon standing due to complete volatilisation of the amines). Enter the result, positive or negative on question 5.3 in the examination report form.

9. Take 5 mls of blood for serology. Make sure the container is labelled with the patients study number, clinic registration number and date of visit.

Laboratory and clinical diagnosis

1. Procedures carried out on vaginal specimen:

0.9% saline wet mount of vaginal fluid for trichomonads, candida sp., clue cells.
Gram stain on vaginal smear for clue cells and mixed baterial flora consistent with Bacterial vaginosis.
Sabourand dextrose culture for candida sp.

Diagnosis of vaginal infection:

a. Bacterial vaginosis clinically diagnosed if detect at least 4 of the following charateristics:
1) a thin homogenous discharge adhereing to the vaginal wall.
2) a pH greater than 4.5
3) a fishy odour itensified on addition of 10% KOH (whiff test).
4) the presence of clue cells in microscopical examination of wet mount.
And/or documented by gram stain, the presence of clue cells combined with a mixed bacterial flora such as coryneform rods, Gram positive cocci, small Gram negative rods, curved rods is consistent with BV.
b. Trichomonads found on saline (0.9%) wet mount.
c. Candida noted on KOH (10%) wet mount and/or isolated from vaginal culture.

2. Procedures carried out on cervical specimens:

Swab One

Gram stain on cervical smear for gram negative intracellular diplococci.
Modified Thayer Martin culture for N. gonorrhoeae

Confirmatory diagnosis of N. gonorrhoea using carbohydrate degradation test.

Swab Two
Immunoassay for C. trachomatis using *Clearview Chlamydia.*

Diagnosis of cervical infection:
a. N. gonorrhoea isolated from cervical culture and confirmed with carbohydrate degradation test or if typical gram negative diplococci identified within polymorphonuclear leukocytes on cervical gram stain.
b. C. trachomatis demonstrated by immunoassay.
c. Mucopurulent cervicitis if a cervical Gram stain free of vaginal contamination reveals 30 or more polymorphonuclear leukocytes (PMN) per 1,000X field.

3. Procedures carried out on blood sample:
RPR confirmed by TPHA

Diagnosis of syphilis:
RPR, confirmed with TPHA.

4. Diagnosis of pelvic infection based on clinical criteria:
Lower abdominal pain plus:
Mucopus exuding from cervix and/or tenderness on cervical movement and/or adnexal tenderness.
No abdominal rebound tenderness and/or guarding
Last menstrual period not overdue
No recent abortion or delivery
No menorrhagia or metrorrhagia

Appendix 10

Definitions of infertility

The terms infertility, sterility and infecundity are often used loosely without regard to precise definition. This situation is complicated by the fact that medical definitions are somewhat different to those used in demography. In medical studies infertility is usually defined as the inability to become pregnant or to achieve fertilisation. In this context primary infertility is defined as never having conceived and secondary infertility is defined as not being able to conceive after one or more conceptions earlier in the woman's life.[1] In demography, strictly the term infertility refers to reproductive performance rather than capacity (IUSSP, 1982; Bongaarts and Potter, 1983) and the term childlessness refers to the state of a woman, man or couple who has/have so far been infertile. The capacity of a man, woman or couple to produce a live birth is called fecundity and the lack of that capacity is called infecundity or sterility. Infecundity or sterility is mainly attributable to the inability to conceive, but it may also be attributed to conditions such as pregnancy wastage.

Many demographic studies use the term infertile as in the popular usage which sees it as a strictly involuntary state and very much to do with a biological incapacity to reproduce (at least without medical intervention). The Oxford Dictionary meaning for the term, 'not fertile', carries this sense. Thus, when demographers use the term infertility to mean a lack of demonstrated fertility it is normally in situations where it is assumed that the overwhelming cause of that lack of fertility is biological and the term 'voluntary infertility' is rarely used. In keeping with this practice this study uses the terms infertility and sterility interchangeably. Primary infertility (or primary sterility) is defined in this study as the inability of a woman or a couple to have a live birth and secondary infertility (or secondary sterility) is used to refer to the loss of the previously possessed ability to have a live birth, as demonstrated by an earlier live birth. This definition of secondary infertility has been chosen because it is almost impossible to distinguish between biological primary infertility and early secondary infertility defined as the loss of the earlier possessed ability to have a live birth. It should be noted that demographic measures may tend to overestimate infertility in that it is difficult to distinguish between a very low capability of having a live birth and absolute sterility.

---

[1] The medical definition of infertility takes into account the length of time the person or couple has been exposed to the risk of conception. The epidemiological definition recommended by the World Health Organization (1975) depends on a two-year period of exposure while clinical studies often use a one-year period.

Appendix 11

Description of methods used for calculation of infertility measures

The method to measure infertility devised by Caldwell and Caldwell (1983) uses indices of primary and secondary sterility based on parity distributions by age of women. The indices are constructed based on data which appear to show that all women in Nigeria (with the exception of a numerically insignificant number with higher educational qualifications and white collar employment) have at leat three births by 30-339 years of age and four births by the age of 40 years unless experiencing serious problems of sterility or subfecundity. The Caldwells also cite data to show that the proportion able to bear only 1-2 children by 30-39 years of age is a good predictor of the proportion able to bear 1-3 by the age of 40 years. The method used by Caldwell and Caldwell has some shortcomings in that by presenting estimates for only the older ages it loses information about the effects of biological ageing on sterility. Furthermore, it does not establish the age of onset of sterility corresponding to the estimate. Arnold and Blanc (1990) present a number of measures of infertility based on the length of the open birth interval. These include the proportion of currently married women whose date of first marriage was five or more years ago with no live birth, and the percentage of currently married women aged 25-49 whose first child was born five or more years ago who have not gone on to have a second child. Following Vaessen's (1984) study, the cut-off point of five years was chosen because, in the countries under, study very few first births took place after that period. That is, if a woman after five years of marriage had not yet had a child then she was unlikely to ever have one. In countries where there is very early age at marriage a problem arises from adolescent subfecundity; therefore only women aged 25 or over were included in the calculations (Vaessen, 1984: 8). On the assumption that remarriage rates are high where dissolution is common, selective dissolution of childless marriages was not taken as an important potential downward bias. As the vast majority of women in the countries in question married before age 25 the potential upward bias arising from reduced fecundity associated with older age at marriage was not thought appreciable.

There are a number of problems associated with Arnold and Blanc's measures. They assume that regular sexual activity begins with marriage. This obviously presents a problem in those societies with a high degree of premarital sexual activity. They also

assume that marriage is associated with continuous exposure and make no allowances for such factors as coital frequency, contraceptive use and spousal separation. Moreover, if the measure of infertility is restricted to currently married women it may underestimate infecundity as couples with no children may be more likely to experience marriage dissolution. Women who have not borne a child during the period of interest may have had a miscarriage or abortion, been temporarily separated from their partner, be suffering from ill health, have stopped having intercourse or have failed to report contraceptive use, whilst those who have borne a child may have become infecund later on in the period. In addition to these problems these measures do not establish the age of onset of sterility corresponding to the estimate.

After testing various methods for measuring the level and age pattern of sterility from incomplete birth histories using a simulation model, Larsen and Menken (1989) concluded that estimates based on information about fertility subsequent to a given age are more robust with respect to variations in reproductive determinants, sample size and sampling variation than other measures such as the Open-Interval estimator (Vaessen, 1984) and the Demonstrated Fecund estimator (Henry, 1961, 1965).

In his studies of natural fertility populations Henry (1961, 1965) developed two methods of estimating age-specific rates of sterility, the *demonstrated fecund* estimator (*DF*) and the *subsequently infertile* estimator (*SI*). In the subsequently infertile estimator a couple which has no live birth at age x or later is defined as being infertile subsequent to age x. The index of the proportion sterile at age x is then estimated as the number of couples infertile subsequent to age x divided by the total number of couples observed at that age.

This index cannot be interpreted as a measure of the true proportion sterile at the exact age x from which it is calculated. It represents the proportion sterile at some later age x^* because some of the couples who have no children from age x on are not sterile at exact age x. They become sterile at a later date but before they can have a(nother) child. The estimator *SI* will be useful in practice only if the relationship between the age x and the age x^* is relatively unaffected by differences among populations in the level of sterility and in other variables that affect fertility such as fecundity, spontaneous abortion, age at marriage and the length of the post partum non-susceptible period.

Larsen and Menken (1989) apply the concept of subsequent infertility to incomplete birth histories;[2] in doing so they assume that a woman is infertile if she is observed for a period of a least length T during which she was sexually active and did

[2]Here, sterility is treated as an attribute of the woman rather than the couple.

not use contraception but did not have a live birth. All women aged 15-49 who have been in one union for at least 5 yeasr are eligible for inclusion in the analysis. However, a woman contributes information to sterility estimates calculated from age x only if she is observed and continuously married from exact age x to at least exact age $x+T$.

Larsen and Menken (1989) used a microsimulation model modified from Barrett (1971) by Trussell and Wilson (1985) to assess the characteristics of the *SI* and other estimators. A wide range of sterility patterns and other reproductive determinants likely to cover the range of variations found in human populations was postulated in this model, which was modified to permit analysis of censored data.

As the proportion sterile at each age x in the simulated sample of women was known, the reference age x^* with the proportion equal to the value of the *SI* index could be found. The sensitivity of the *SI* estimator to variations in reproductive characteristics was tested by defining a base model and a series of models that differed from the base model by only a single reproductive characteristic (Larsen and Menken, 1989). It was found that the *SI* estimator was not sensitive to large variations in the underlying patterns of sterility and that age at marriage had little effect on the reference age, x^*. Compared with the demonstrated fecund estimator (*DF*), the *SI* estimator was more sensitive to differences in fecundity but demonstrated only minor differences in reference ages for models with different lengths of post partum infecundity (Larsen and Menken, 1989: 113). The reference ages for the *SI* estimator calculated for five-year age groups from incomplete birth histories using the base model are shown in Table A1.

Table A1
Ages at which the true proportion sterile is equal to the value of the subsequently infertile sterility index based on censored birth histories

Calculation age group	Reference age for sterility index
15-19	19.9
20-24	23
25-29	28.2
30-34	34.3
35-39	40.2
40-44	44.3

Source: Larsen and Menken (1989: 195).

When the subsequently infertile estimator is based on five-year age intervals, from exact age x to $x+5$, and incomplete birth histories, the population is restricted to

women who are observed and married throughout the interval from exact age *x* until exact age *x*+5. The following definitions are necessary (Larsen, 1985: 26):
Let x = 15, 20, 25 etc., and

$_5W_x$ = all women who are observed and married from exact age x until at least exact age x – 5.

The $_5W_x$ women can be subdivided in to two groups, $_5WC_x$ and $_5WL_x$, where $_5W_x$ = $_5WC_x$ + $_5WL_x$:

$_5WC_x$ = women who complete no five-year age interval after (x, x+5), and

$_5WL_x$ = women who complete at least one later five-year age interval.

The $_5WC_x$ women can be further classified by whether or not they have a live birth in this five-year age interval. The two groups are $_5WC(0)_x$ and $_5WC(1)_x$, where $_5WC_x$ = $_5WC(0)_x$ + $_5WC(1)_x$:

$_5WC(0)_x$ = women who do not have a live birth in this five-year age interval (i.e. women whose last live birth occurred before exact age x or who are childless), and

$_5WC(1)_x$ = women who have at least one live birth in this five-year age interval.

The $_5WL_x$ women can be subdivided similarly by the interval of their last live birth. The two groups are $_5WL(0)_x$ and $_5WL(1)_x$, where $_5WL_x$ = $_5WL(0)_x$ + $_5WL(1)_x$:

$_5WL(0)_x$= women who do not have a live birth in this five-year age interval or in a later interval (i.e. women whose last live birth occurred before exact age x or who are childless), and

$_5WL(1)_x$ = women whose last live birth is in this five-year age interval or in a later interval.

The subsequently infertile estimator is based on whether or not a woman bears a child at age x or later:

$$_5SI_x = (_5WC(0)_x + _5WL(0)_x)/_5W_x$$

$_5SI_x$ is the proportion of married women who have no live birth in the five year interval x to x+5 and, if observed, in any later interval. The $_5SI_x$ estimator measures primary and secondary sterility combined.

The start of exposure to the risk of child bearing is set equal to the date of marriage. The period of sexual activity can either be censored at the time of the survey (if the first marriage was intact) or end at the dissolution of the first marriage. Where the first marriage is dissolved the woman can reenter the analysis at entry into her second marriage and so on.

Not all women are sexually active. Some may practice post partum abstinence or terminal abstinence. The subsequently infertile measure is not sensitive to variations in period of post partum infecundity. In cases where very few women are practising terminal abstinence they may be omitted from the analysis (Larsen and Menken, 1989).

In addition to not being exposed to sexual activity some women may be contracepting. The estimates of sterility may be biased in the presence of contraceptive use and if those who have used contraceptives effectively over a long period of time are wrongly labelled as sterile, the estimates could be seriously affected (Larsen and Menken, 1989: 195). Thus, this measure is only suitable for use in countries with low levels of contraceptive use.

Appendix 12

Data quality of the NFS and NDHS in relation to measures of infertility

Morah (1985) has made an evaluation of reporting errors in the NFS. This assessment shows that knowledge of the exact dates of birth of children was low, with the dates of most births being estimated. There are indications of some omissions of births, particularly female births, among older cohorts. There is also a suggestion that some very recent births (within the previous three years) had been omitted. There appears to have been a genuine decline in fertility among women belonging to the higher education, southeast residence and 15-19 years of age subgroups.

A number of indicators of the quality of the fertility data in the NDHS are presented here. One of the simplest is the distribution of women in the survey by age. Figure A1 reveals very considerable digit preference, with extreme age-heaping at ages ending in 0 or 5 (excluding age 15).

In a growing population, unless there have been sudden and drastic declines in fertility levels, the absolute number of births should be increasing. Where no such decline has taken place, omission of births or the incorrect reporting of the age of the child can be revealed by examining the percentage distribution of all live births according to year of birth (Figure A2). This distribution shows substantial fluctuations, with quite severe heaping at years ending in 0 and 2 and troughs at years ending in 1 and 9. There is some falling off in the number of births in the years immediately preceding the survey, which may indicate the omission of some recent births.

In the absence of recent increases in fertility the mean number of children ever born would be expected to increase with increasing age of the women. Figure A3 presents the mean number of children ever born by ages of the women at the time of the survey. Mean parity rises fairly smoothly with age up to about age 34. However, at older ages the graph becomes less regular. Such fluctuations could be due to sampling variability, omission of births or distortions due to the age heaping among respondents. The latter could have arisen if women reported inflated ages, thereby depressing the obtained number of children ever born. If this were the case one would expect the fertility fluctuations to be marked at precisely the ages at which heaping occurs; however if a comparison is made with Figure A1, the pattern is quite different.

Table A2 presents cohort-period fertility rates, cumulative rates by cohort and period and P/F ratios for the NDHS. In presentation the rates are aligned according to

Figure A1

Percent distribution of women aged 15-49, NDHS

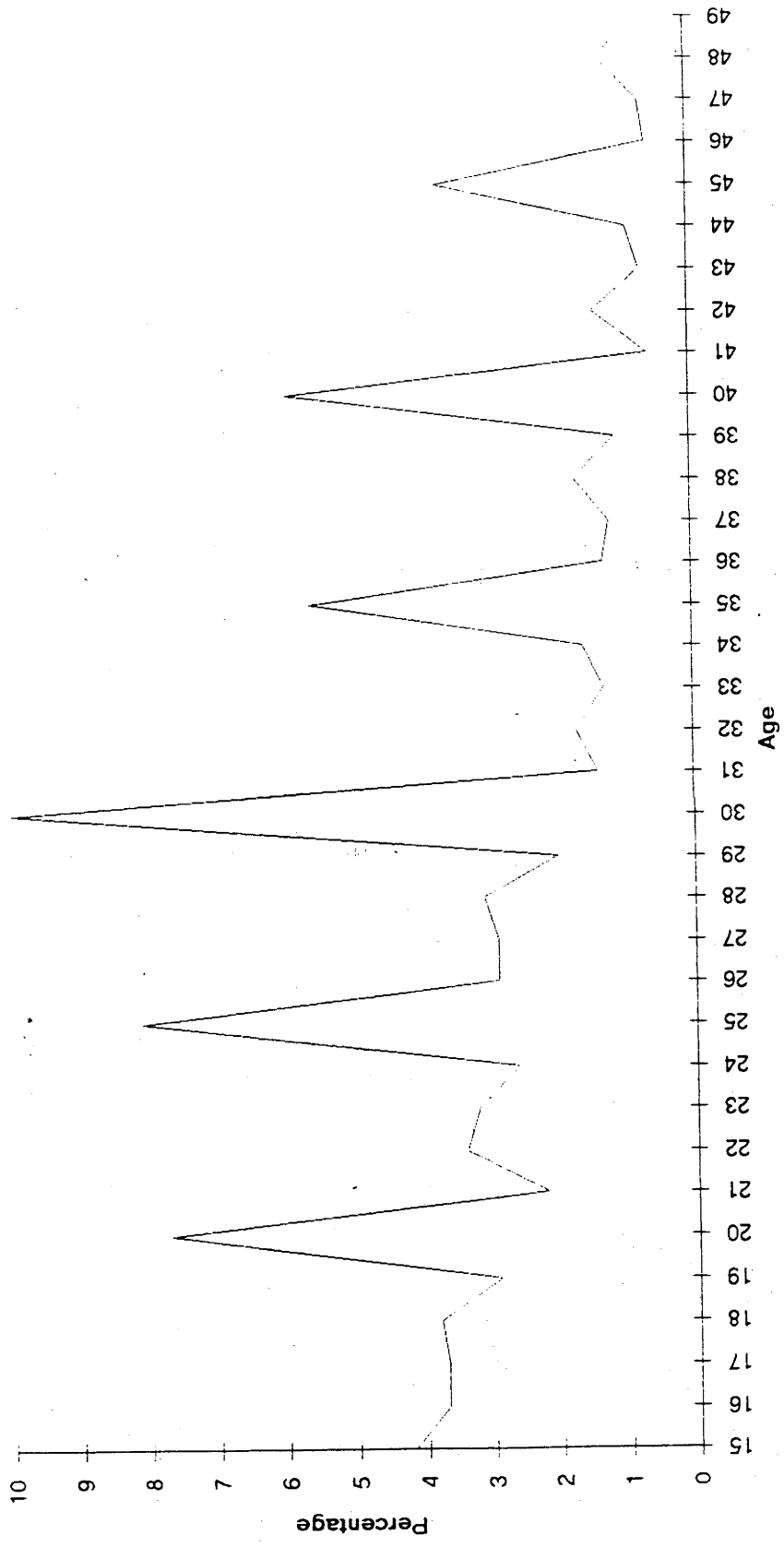


Figure A2

Percentage distribution of all live births according to year of birth, NDHS

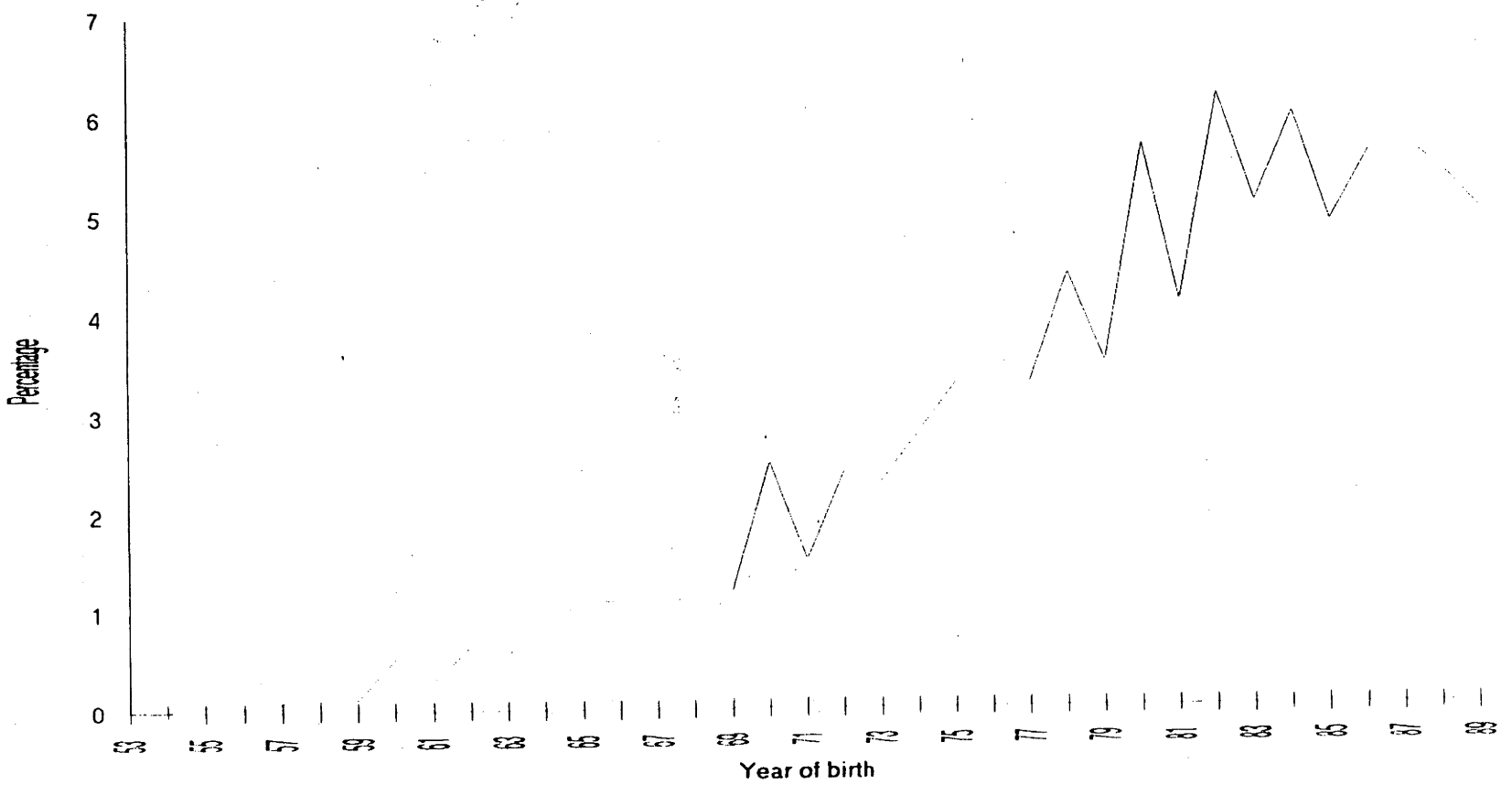
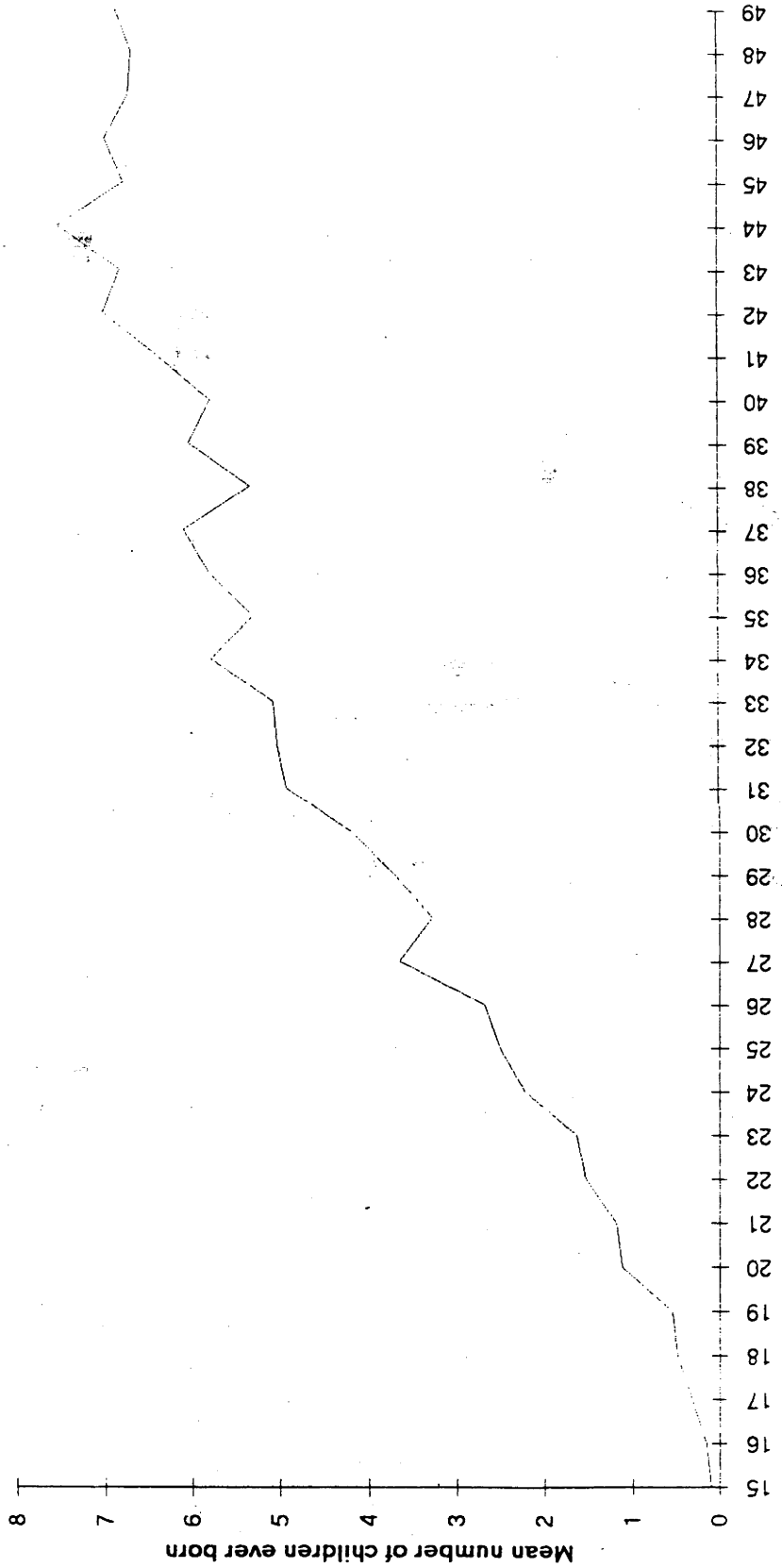


Figure A3

Mean number of children ever born for all women, by single years of age, NDHS



to the age of the cohort at the end of each time period. Rates at equivalent ages are found along a row of the table, rates for a given period in a column, and rates for a given cohort along an upward diagonal.

An examination of cumulative fertility rates by cohort (Panel C) shows evidence of misreporting for the oldest cohorts. For example, the cohort aged 45-49 has achieved a parity of 1.242 by age 20-24, a value less than those for all other cohorts except for the 35-39 year-old cohort which in turn has a lower value than all younger cohorts. The lower fertility rates of the oldest cohorts in the earliest periods suggests omission of births in the more distant past or displacement of dates of events toward the survey date.

An examination of the P/F ratios (Panel E) for the period 0-4 years before the survey shows, with the exception of the 35-39 and the 40-44 age groups, an increase in P/F values with increasing age, which is indicative of a decline in fertility. The lower P/F values for the 35-39 and 40-44 age groups could be indicative of the omission of births. The periods 5-9 and 10-14 years before the survey show a decline in P/F ratios with increasing age which suggests omission of births by older women.

Table A2

Cohort-period fertility rates, cumulative rates by cohort and period, and P/F ratios, by age group, Nigeria

Age group	No. of women	Reference period, years before survey						
		0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34
A		Number of births						
15-19	1611	458	26					
20-24	1676	1462	651	41				
25-29	1669	1922	1735	568	46			
30-34	1409	1479	1931	1459	539	47		
35-39	954	775	1127	1249	867	307	23	
40-44	836	432	863	1044	884	783	284	14
45-49	624	208	464	642	667	728	567	208
B Cohort-period fertility rates								
15-19		0.057	0.078	0.068	0.077	0.064	0.068	0.067
20-24		0.174	0.208	0.207	0.182	0.187	0.182	
25-29		0.230	0.274	0.262	0.211	0.233		
30-34		0.210	0.236	0.250	0.214			
35-39		0.162	0.206	0.206				
40-44		0.103	0.149					
45-49		0.067						
C Cumulative fertility of cohorts at end of period (P)								
15-19		0.284	0.388	0.340	0.383	0.322	0.340	0.333
20-24		1.261	1.380	1.418	1.231	1.276	1.242	
25-29		2.531	2.789	2.540	2.334	2.409		
30-34		3.838	3.721	3.583	3.478			
35-39		4.534	4.615	4.506				
40-44		5.132	5.250					
45-49		5.583						
D Cumulative fertility within periods (F)								
15-19		0.284	0.388	0.340	0.383	0.322	0.340	0.333
20-24		1.157	1.428	1.376	1.291	1.258	1.248	
25-29		2.308	2.798	2.685	2.349	2.425		
30-34		3.358	3.980	3.934	3.418			
35-39		4.170	5.012	4.963				
40-44		4.687	5.756					
45-49		5.020						
E P/F ratios								
15-19		1.000	1.000	1.000	1.000	1.000	1.000	1.000
20-24		1.090	0.966	1.031	0.953	1.014	0.995	
25-29		1.097	0.996	0.946	0.994	0.993		
30-34		1.143	0.935	0.911	1.018			
35-39		1.087	0.921	0.908				
40-44		1.095	0.912					
45-49		1.112						

Source: Nigeria Demographic and Health Survey 1990 data tape.

Appendix 13

Notes on classifying symptoms consistent with an RTI

Questions about lower abdominal pain were designed to identify women who may be suffering from pelvic inflammatory disease (PID). Women with acute PID may have mild to severe lower abdominal pain and discomfort; other common symptoms are vaginal discharge, dysuria, deep pain with intercourse, pain on defecation, fever with or without chills and menstrual irregularities. Those with chronic PID may have lower abdominal pain, deep pain with intercourse, menstrual irregularities or infertility. Some sufferers may have no significant signs or symptoms.

Vaginal discharge is a common gynaecological complaint of sexually active women and it may be physiological or pathological in origin. Vaginal discharge is a continuum; some women have copious discharge, others none or little. Only the woman can therefore determine what is her own normal experience. A normal discharge may increase and be noticed only premenstrually, at the time of ovulation, or when using the contraceptive pill or IUD. Normal discharge is often increased during pregnancy. Pathological causes include candida, trichomoniasis, bacterial vaginosis, gonorrhoea and chlamydia. Vaginal discharge may also be caused by a chemical vaginitis due to topical self-medication or repeated vaginal cleaning with abrasive substances.

Before being asked about any abnormal discharge women were first asked to describe a 'normal' discharge. Women who reported an abnormal vaginal discharge often commented that there were excessive secretions that meant frequent changes of underclothing, a change in the colour of the discharge, an accompanying bad odour or vaginal itching. All respondents were asked about sanitary hygiene and the use of vaginal preparations

Genital ulcers are defined as 'a loss of continuity of the skin of the genitalia' (WHO, 1991). They may be painful or painless and are often accompanied by a swelling of the inguinal lymph nodes. Common sexually transmitted infections causing genital ulcers include syphilis, chancroid, donovanosis, lymphogranuloma venereum and herpes simplex virus. Ulcers may also be due to trauma and subsequent bacterial infection.

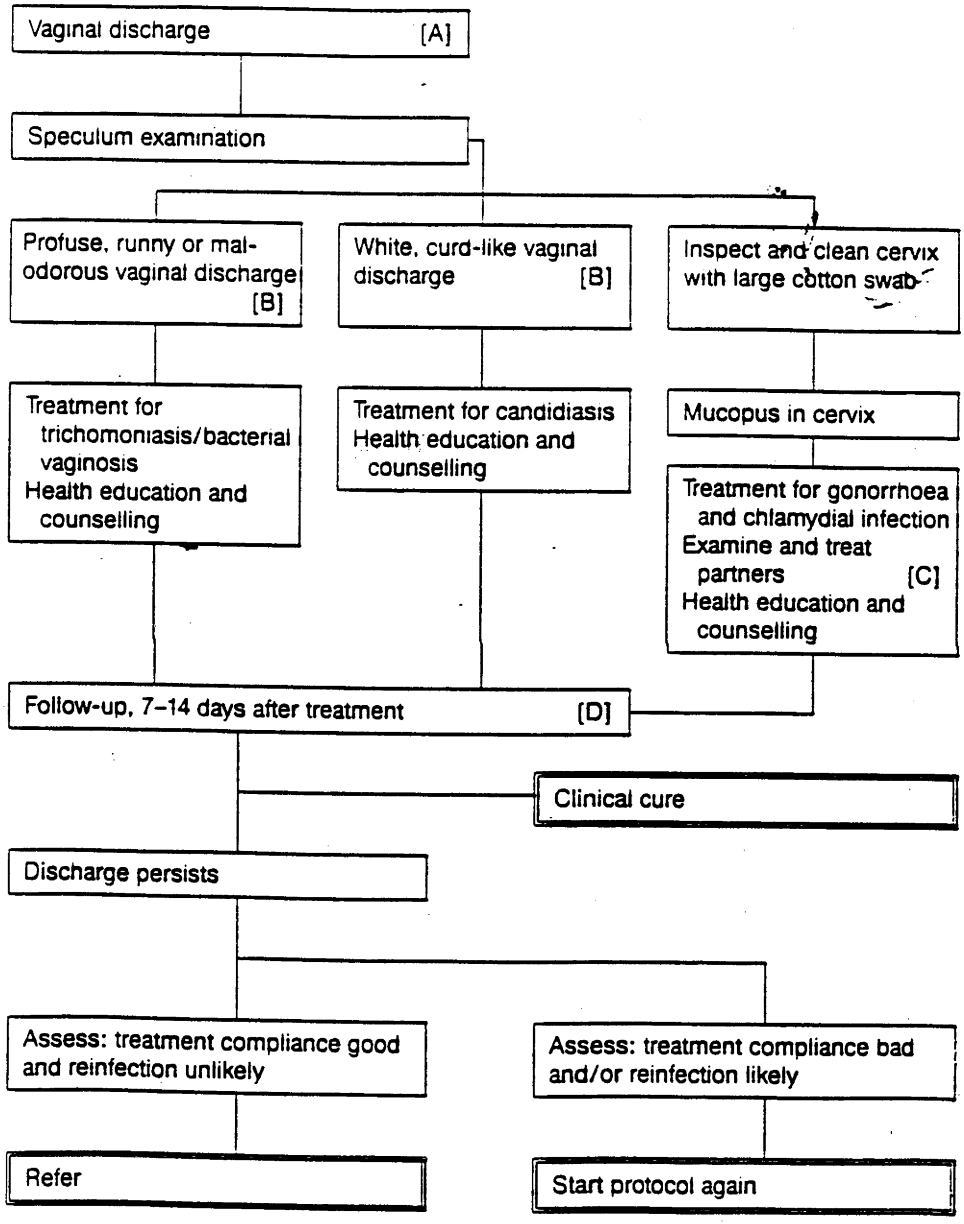
Ifibe and *jabejabe* were included as indicators of past reproductive tract infections. A distinction was made between the mild and severe forms of *ifibe* and women were specifically asked whether it had been accompanied by diarrhoea, menstrual irregularities, vaginal discharge, vaginal itching or deep pain with sexual intercourse. Those women who reported having *jabejabe* were asked whether the vaginal itching had been accompanied by an abnormal discharge.

Appendix 14

Flow chart, management for vaginal discharge

Algorithm 4

Vaginal discharge (speculum examination possible, but no laboratory support)



[A] If vaginal discharge is accompanied by lower abdominal pain or pain on moving the cervix, use the appropriate "lower abdominal pain" algorithm (see section 4.3).

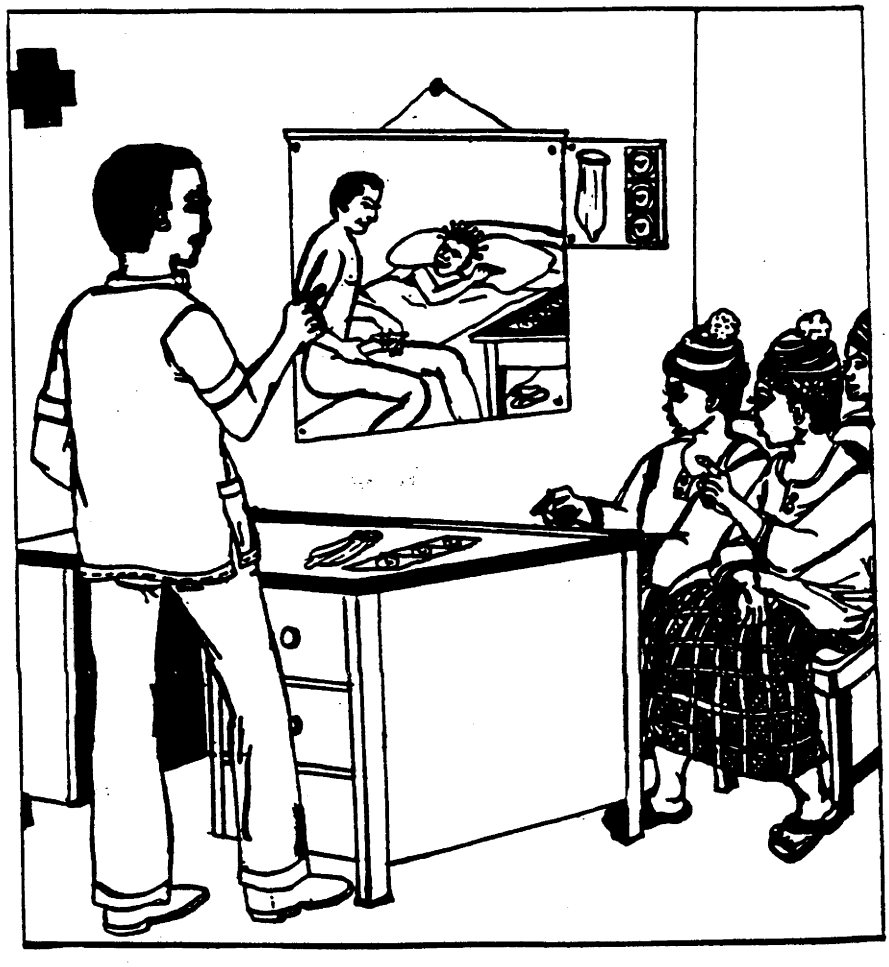
[B] In addition, the pH paper test can be used: if pH lower than 4.5, treat for candidiasis; if pH higher than 4.5, treat for trichomoniasis/bacterial vaginosis.

[C] In the absence of a confirmed diagnosis, the decision to notify partner(s) should take into account local cultural and epidemiological factors.

[D] Patient may be advised to return only if symptomatic.

Appendix 15

Example page from condom education booklet



Di nurse for di klinic dey show people differen things wey people go use if dem no wan give their wife belle. He show dem as dem go put the roba wey dem dey call 'Kondom' for prik wey don stand up. He say the roba no go allow di 'man water' for enter inside woman. Dis mean say belle no go come if man wear dis roba. Even sef di roba fit help make couple no catch AIDS or any other sickness wey dey commot when dem meet.

Logistic Regression Models- Full Models

Dependent Variables

Independent Variables	Received tetanus injection			Received prof. antenatal care			Prof. assistance at delivery		
	Signif.	OR	CI	Signif.	OR	CI	Signif.	OR	CI
Maternal Age	0.339	-	-	0.0533	-	-	0.000	-	-
<20 vs 35+	0.939	1.026	0.523-2.013	0.0426	0.433	0.194-0.964	0.000	0.245	0.130-0.462
20-34 vs 35+	0.215	1.287	0.866-1.913	0.987	1.003	0.646-1.557	0.001	0.542	0.375-0.784
Education	0.003	-	-	0.000	-	-	0.000	-	-
Primary vs none	0.965	1.007	0.724-1.401	0.437	1.160	0.800-1.681	0.042	1.370	1.013-1.852
Secondary/higher vs none	0.002	1.929	1.273-2.924	0.000	2.951	1.715-5.080	0.000	2.673	1.850-3.862
Parity	0.204	-	-	0.267	-	-	0.261	-	-
1 vs 6+	0.289	0.739	0.777-1.285	0.146	1.691	0.837-3.417	0.059	1.649	0.985-2.763
2-3 vs 6+	0.343	0.806	0.519-1.252	0.101	1.549	0.922-2.602	0.321	1.225	0.823-1.823
4-5 vs 6+	0.342	1.221	0.811-1.839	0.114	1.446	0.919-2.274	0.828	1.041	0.725-1.493
Urban vs rural residence	0.000	1.469	1.097-1.969	0.053	1.411	0.998-1.992	0.000	2.517	1.931-3.282

Signif. = Significance OR = Odds Ratio CI = 95% Confidence Interval

Source: Nigeria Demographic and Health Survey data tape, 1990.